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# PROCEEDINGS

OF THE

# Biological Society of Washington

VOLUME XVI

1903

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1904

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OF THE

# BIOLOGICAL SOCIETY OF WASHINGTON

For 1903

(ELECTED DECEMBER 27, 1902)

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VOL. XVI, PP. VII-XII. APRIL 18, 1904

PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

## PROCEEDINGS.

The Society meets in the Assembly Hall of the Cosmos Club on alternate Saturdays at 8 P. M. Brief notices of the meetings, with abstracts of the papers, are published in *Science*.

### January 10, 1903—364th Meeting.

The President in the chair and 54 persons present.

Walter Evans spoke of a forest reserve which was about to be established in northeastern Porto Rico.

The following communications were presented:

L. O. Howard: Exhibition of Lantern Slides Illustrating Yellow Fever Investigations in Cuba.

S. E. Meek: The Geographic Distribution of the Fresh-water Fishes of Mexico.

O. P. Jenkins: Rate of the Nervous Impulse in Certain Invertebrates.

### January 24, 1903—365th Meeting.

The President in the chair and 27 persons present.

William Palmer exhibited specimens of *Camptosorus rhizophyllus*, showing irregularities in the form of the base.

T. D. A. Cockerell recorded three species of fish new to the Territory of New Mexico.

The following communications were presented:

A. D. Hopkins: Work of Forest Insects.

O. F. Cook: An Ordinal Character in the Diplopoda.

O. F. Cook: Evolution, Cytology, and Mendel's Laws.*

* Pop. Sci. Monthly, LXIII, pp. 219-228, July, 1903,

### February 7, 1903—366th Meeting.

The President in the chair and 37 persons present.

The following communications were presented:

Vernon Bailey: The Goodnight Herd of Buffaloes and Cataloes in Texas.*

T. H. Kearney: Further Observations on the Effect upon Seedlings of Sodium and Magnesium.

Frank Bond: Irrigation Methods and Machinery.

### February 21, 1903—367th Meeting.

The President in the chair and 34 persons present.

Carleton R. Ball exhibited specimens of 5 species of grasses of the genus *Elymus*, illustrating differences between those grown in open and in shady places.

The following communications were presented:

D. E. Salmon: The Recent Outbreak of the Foot and Mouth Disease in New England.†

H. J. Webber: Egyptian Cotton in the United States.‡

W. E. Safford: The Fauna of the Island of Guam.§

### March 7, 1903—368th Meeting.

The President in the chair and 42 persons present.

F. A. Lucas exhibited lantern slides showing the famous fossil-bearing quarries of Solenhofen, Bavaria, and also views of colonies of iguanas on the Galapagos Islands.

The following communications were presented:

F. W. True: Attitudes and Movements of Living Whales.‖

O. F. Cook: Biological Notes from Liberia.

### March 21, 1903—369th Meeting.

The President in the chair and 31 persons present.

T. D. A. Cockerell exhibited specimens of cockleburs intermediate between *Xanthium commune* and *Xanthium commune intermedium*.

B. W. Evermann spoke of shad from Pensacola, Florida, found to be identical with the Alabama shad.

The following communications were presented:

T. S. Palmer: The Preservation of Pelican Island as a Breeding Ground for Birds.

Walter H. Evans: The International Catalogue of Scientific Literature.

Vernon Bailey: Desert Life of Western Texas.

Paul Bartsch: Notes on the Herons of the District of Columbia.¶

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* Forest and Stream, LX, p. 325, Apr. 25, 1903.

† 19th Ann. Rept. Bur. Anim. Industry, U. S. Dept. Agric., pp. 391–408, 1903.

‡ Trans. New Eng. Cotton Manuf. Assoc., No. 74, pp. 202–216, 1903; Proc. 7th Ann. Conven. So. Cotton Spinners' Assoc., pp. 127–141, 1903.

§ Birds of the Marianne Ids., The Osprey, N. S., I, pp. 39–42, March, 1902; pp. 65–70, April, 1902.

‖ Smithsonian Misc. Col., XLV (quarterly issue), pp. 91–94, pls. XXIV–XXVI, Dec. 9, 1903.

¶ Smithsonian Misc. Col., XLV (quarterly issue), pp. 104–111, Dec. 9, 1903.

### April 4, 1903—370th Meeting.

Vice-President Ashmead in the chair and 39 persons present.

The following communications were presented:

H. J. Webber: Bud Sports and Bud Variation in Breeding.

R. H. True: The Manufacture of Tea in America.

W. C. Kendall: The Fishes of the Rangely Lakes.

### April 18, 1903—371st Meeting.

The President in the chair and 25 persons present.

The following communications were presented:

W. J. Spillman: Agrostological Problems in the United States.

B. H. Dutcher: The Mammals of Mount Katahdin, Maine.*

V. K. Chesnut: Notes on the Dissemination of *Sedum douglassi* by Proliferous Shoots.

### May 2, 1903—372nd Meeting.

Vice-President Hay in the chair and 25 persons present.

The following communications were presented:

F. V. Coville: Wocas: An Aboriginal Cereal (*Nymphaea polysepala*).†

J. W. T. Duvel: Vitality of Seeds.‡

G. H. Shull: Geographic Distribution of the Sugary Quillwort (*Isoetes saccharata*).§

### May 16, 1903—373rd Meeting.

The President in the chair and 30 persons present.

F. V. Coville exhibited a monstrous specimen of the grape-hyacinth.

Frank Baker announced that the collection at the National Zoological Park had recently been increased by three specimens of the echidna and by the birth of a tapir.

The following communications were presented:

C. W. Stiles: The New American Hook-worm and its Medical Importance.‖

F. V. Coville: Location of the Desert Botanical Laboratory of the Carnegie Institution.¶

### October 17, 1903—374th Meeting.

The President in the chair and 17 persons present.

L. O. Howard spoke of the length of silk in single cocoons of the silkworm, stating that in 15 cocoons actually measured the length varied from 880 to 1,102 yards.

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* Proc. Biol. Soc. Wash., XVI, pp. 63–72, May 29, 1903.

† Ann. Rept. U. S. Nat. Museum for 1902, pp. 725–739, March, 1904.

‡ To be published as a bulletin of the Bureau of Plant Industry, U. S. Dept. of Agriculture.

§ Botanical Gazette, XXXVI, pp. 187–202, Sept., 1903.

‖ Bull. No. 10, Hyg. Lab., U. S. Pub. Health and Marine Hosp. Serv., pp. 1–121, fig. 1–86, 1903.

¶ Carnegie Inst., Wash., Pub. No. 6, 1903.

The following communications were presented:

T. S. Palmer: Indexing Scientific Names, with Special Reference to the Genera of Mammals.*

O. F. Cook: Central American Mutations of Coffee.

W. P. Hay: Terrapin Culture in the United States.

### October 31, 1903—375th Meeting.

The President in the chair and 37 persons present.

Walter Evans exhibited a copy of a circular of directions for the destruction of mosquitoes to be distributed in the Hawaiian Islands and printed in all the languages commonly used there.

L. O. Howard stated that the larvae of *Anthrenus varians* of the family Dermestidae, had been observed to prey upon the eggs of the tussock moth.

The following communications were presented:

R. P. Currie: A Recent Entomological Expedition to British Columbia.

M. A. Carleton: Geographic Distribution of the Oat Plant.

Ch. Wardell Stiles: The Dwarf Tapeworm (*Hymenolepis nana*), a Newly Recognized and Rather Common Parasite of Man in the United States.†

### November 14, 1903—376th Meeting.

The President in the chair and 41 persons present.

Lester F. Ward spoke of the description, in 1840, by C. G. Ehrenberg, of 14 hypothetical species of Diatomaceæ, 10 of which were afterward actually discovered and recognized.

W. H. Dall discussed the existence of a dorsal keel toward the tail in porpoises.

G. K. Gilbert exhibited photographs showing a remarkable development of heliotropism in the trunks of *Pinus balfouriana* in California.

The following communications were presented:

Lester F. Ward: The Dresden Cycad (*Cycadeoidea reichenbachiana*).

F. A. Lucas: The Making of a Whale.

### November 28, 1903—377th Meeting.

The President in the chair and 37 persons present.

The following communications were presented:

H. F. Moore: The Artificial Fattening of Oysters.

F. H. Hillman: The Comparative Effects of the Seed Midge and of *Brucophagus funebris* on the Structure of Clover Fowers and Fruits.

Charles Hallock: Sea Trout Where No Rivers Are.

O. F. Cook: The Vegetative Vigor of Hybrids and Mutations.

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* Index Generum Mammalium, N. Am. Fauna, No. 23, pp. 1-984, Feb., 1904.

† N. Y. Med. Journ. and Phila. Med. Journ. (consolidated) (1301), Vol. 78 (19), pp. 877-881, figs. 1-5, Nov. 7, 1903.

### December 12, 1903—378th Meeting.

The President in the chair and 31 persons present.

L. A. Fuertes exhibited a painting showing the life colors of the soft parts of the California condor and another showing a hybrid between two genera of quail, *Lophortyx* and *Oreortyx*.

H. E. Van Deman exhibited specimens of the "Grimes Golden" apple.

The following communications were presented:

W. H. Ashmead: Remarks on Japanese Hymenoptera.

V. K. Chesnut and Harry T. Marshall: Some Observations on "Locoed" Sheep.

Charles Hallock: The Bison as a Factor in the Distribution of Aboriginal Population in Mid-Continental America.

VOL. XVI, PP. 1-2 FEBRUARY 21, 1903

PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# A NEW SAUROPOD DINOSAUR FROM THE JURASSIC OF COLORADO.

BY J. B. HATCHER.

The remains upon which this paper is based were discovered and collected by Mr. W. H. Utterback in the lower Jurassic, in the quarry long worked by the late Professor Marsh, and situated some eight miles north of Canyon City, Colorado.

**Haplocanthus priscus**, gen. et sp. nov.

The type (No. 572, Carnegie Museum Collection) of this genus and species consists of the two posterior cervicals, ten dorsals, five sacrals with the ilia, ischia and pubes and the nineteen anterior caudals, two chevrons, a nearly complete series of ribs, and a femur, all in an excellent state of preservation.

The present genus and species can be distinguished from the known genera and species of the *Dinosauria* by the following characters: *Neural spines of posterior cervicals and anterior dorsals absolutely simple instead of deeply bifurcated as in all other known genera of the Sauropoda.* Sacrum composed of five vertebrae firmly coössified by their centra and functioning as sacrals. Sacral ribs and diapophyses greatly expanded transversely so as to appear proportionally low and broad. Neural spines of sacrals very short, only moderately expanded transversely, the three anterior coössified forming a long bony plate. Pubes massive and united by an extended cartilaginous pubic symphysis which is interrupted

medially by an elongated foramen. Pubic foramen large and situated some distance from the supero-internal border of the bone. Neural arches in dorsal vertebrae extremely high as compared with depth of centra or height of neural spines. Cervicals strongly opisthocœlus, and dorsals only moderately so and becoming almost platycœlus in the posterior dorsal region. Transverse processes of dorsal vertebrae extending obliquely upward and outward from summits of neural arches. Caudal centra short and somewhat amphicœlous with neural spines simple, low, and much compressed. Transverse processes of caudals each consisting of a simple, slender process which in the anterior caudal springs from the side of the neural arch. Posteriorly the transverse processes rapidly decrease in size and assume a more inferior position, so that in the twelfth caudal they are reduced to a rounded knob of bone on the side of the centrum, and in the succeeding caudals they have disappeared altogether. The centra of the anterior caudals are subcircular in outline, but in the posterior caudals the vertical diameter much exceeds the transverse.

The femur is rather longer than one might expect, considering the size and proportions of the individual vertebrae, but does not differ materially from that bone in other genera of the *Sauropoda*.

*Haplocanthus* may be regarded as the most generalized member of the *Sauropoda* yet discovered in America. That it is a member of the *Sauropoda* is clearly shown by the structure of the pelvis and by the characters exhibited by the cervical, dorsal and caudal vertebrae. The comparatively simple structure of the individual vertebrae from the various regions of the spinal column form a striking contrast to that complicated system of laminae and buttresses found in the vertebrae of *Diplodocus*, *Brontosaurus*, *Morosaurus*, and other *Sauropods*, and indicates that *Haplocanthus* was a more primitive form than any of the latter genera. Its affinities are clearly with the *Morosauridæ* and in size it is comparable with the smaller forms of *Morosaurus*. Its principal skeletal features will be fully described and illustrated in a forthcoming Memoir of the Carnegie Museum.

VOL. XVI, PP. 3-4 FEBRUARY 21, 1903

PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# DESCRIPTION OF A NEW SPECIES OF GECKO FROM COCOS ISLAND.

BY LEONHARD STEJNEGER.

[By permission of the Secretary of the Smithsonian Institution.]

Professor P. Biolley, naturalist of the Museo Nacional, San José, Costa Rica, visited Cocos Island, off the western coast of Costa Rica, in 1902, and has sent me specimens of two species of lizards for identification. One is the *Anolis townsendi* described by me recently (Bull. Mus. Comp. Zool., XXXVI, No. 6, p. 163, Nov., 1900) from the same island. The other is a new gecko of the genus *Sphærodactylus* which has its center of distribution in the West Indies but of which several species are also known from Central America and northern South America.

**Sphærodactylus pacificus,** sp. nov.

*Diagnosis.*—Dorsal scales very small, juxtaposed, keeled; ear-opening same size as digital disc; large supranasals separated by two scales, a third median scale anterior to them in the posterior cleft of rostral; scales on top of head keeled.

*Type.*—U. S. National Museum, No. 31057; Cocos Island; Prof. Biolley, collector.

*Habitat.*—Cocos Island, Pacific Ocean off the west coast of Costa Rica.

*Description of type specimen.*—Adult; U. S. Nat. Mus., No. 31057.

Snout moderately pointed, longer than the distance between the eye and the ear-opening, about once and two-thirds the diameter of the eye; ear-opening small, not larger than the discs of the fingers, pear-shaped, horizontal; rostral moderately large with a cleft in the posterior margin, in which is a small median scale; nostril between rostral, first supralabial, a rather large supranasal, and a small postnasal: supranasals separated by two flat hexagonal scales on a line behind the rostral and the small median scale; four large supralabials to below the center of the eye, followed by two small ones, first very long; three large lower labials corresponding to the four large supralabials, followed by two smaller ones, first being as long as the first two supralabials combined; mental large, truncate posteriorly; behind the mental and adjoining the lower labials, large flat scales decreasing in size posteriorly and passing gradually into the granules of the throat; upper surfaces covered with small juxtaposed, granular scales slightly smaller than those on the flanks and keeled, those on the occiput being exceedingly small; the scales on the frontal region somewhat elongate, those on the snout considerably larger, irregularly polygonal, flat but distinctly keeled; a pointed horn-like scale on the superciliary edge a little anterior to the center of the eye; ventral scales rather large, imbricate; tail cylindrical, tapering, covered above with irregular flat scales somewhat smaller than the ventrals, with scarcely any indication of verticels; tail below with a median series of dilated shields except at base which is covered by large flat imbricate scales.

Color (in alcohol) brownish; a pale band extending from the nostril through the upper part of the eye and backwards along the side of the neck communicating with that of the other side in two places across the upper neck; this band can be traced as a very irregular series of pale marblings along the sides of the body; a fairly well-defined dusky band borders this pale one below and across the upper neck, and is in turn bordered below by a pale line on the temples; top of head with ill-defined longitudinal pale marblings the continuation of which may be traced as an irregular pale median dorsal band; tail similarly colored; underside pale, indistinctly mottled with darker brownish.

*Dimensions* (in millimeters).—Type: total length, 82; snout to ear-opening, 11; width of head, 6.5; snout to vent, 47; vent to tip of tail, 35; fore limb, 14; hind limb, 18.

*Variation.*—The four additional specimens sent (U. S. N. M. 31058-61) agree in structural characters very well with the above, except that in none of them is the underside of the tail covered with enlarged cross plates. In No. 31061 the tail is also somewhat longer than the distance from snout to vent. The coloration is also essentially alike, except that in 31059 the longitudinal bands are better defined and more regular, especially on the posterior portion of the body; the underside in all is uniformly pale.

*Remarks.*—This species seems to be most nearly related to *Sphærodactylus lineolatus* from Central America, from which it differs, among other things, in having the upper head scales keeled.

VOL. XVI, PP. 5-8 FEBRUARY 21, 1903

PROCEEDINGS

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BIOLOGICAL SOCIETY OF WASHINGTON

# REVIEW OF THE CLASSIFICATION OF THE CYRENACEA.

BY WILLIAM H. DALL.

In working over the Cyrenacea for the Memoir on the Tertiary Fossils of Florida, in course of publication by the Wagner Institute of Science, it was found that both the nomenclature and the classification were in a state of deplorable confusion. While the details are reserved for that memoir, it was thought that a synopsis of the arrangement adopted might be of use to the students of the group, and it is herewith presented.

## Family **Cyrenidæ.**

Genus *Miodontopsis* Dall (nov.). Type *Cyrena media* Sowerby. Jurassic. This is *Miodon* Sandberger, 1870, not Carpenter, 1865.

Genus *Loxoptychodon* Sandberger, 1872. Type *Cyrena intermedia* Deshayes. Lower Eocene, France.

Genus *Plesiastarte* Fisher, 1887. Type *P. crenulata* Deshayes (as *Cyrena*). Lower Eocene, France.

This is *Anomala* Cossmann, 1886, not Hübner, 1816.

Genus *Ditypodon* Sandberger, 1872. Type *Cyrena suessii* C. Mayer. Lower Pliocene of Italy.

?Genus *Donacopsis* Sandberger, 1872. Type *Cyrena acutangularis* De-

shayes. Eocene of France. I suspect this to be merely a subdivision of *Cyrena.*

Genus *Cyrena* Lamarck, 1818. Type *Cyrena bengalensis* Lamarck. Recent. India.

Section *Polymesoda* Rafinesque, 1820. Type *Cyclas caroliniana* Bosc. Recent. South Carolina. *Cyprinella* and *Diodus* Gabb, and *Leptosiphon* Fischer are synonymous.

Section *Pseudocyrena* Bourguignat, 1854. Type *Cyrena maritima* D'Orbigny. Cuba. *Anomala* Deshayes, not Hübner, *Egeta* H. and A. Adams, and *Cyrenocapsa* Fisher are synonymous.

Section *Geloina* Gray, 1844. Type *Cyrena coaxans* Gmelin (*C. zeylanica* Lamarck). Recent. Ceylon.

Section *Egetaria* Mörch, 1861. Type *E. pullastra* Mörch. West coast Central America.

Section *Isodoma* Deshayes, 1858. Type *I. cyprinoides* Deshayes. Eocene of France.

Subgenus *Leptesthes* Meek, 1872. Type *Corbicula fracta* Meek. Eocene of Nebraska

Genus *Corbicula* Megerle, 1811. Type *Tellina fluminalis* Müller. India.

Section *Veloritina* Meek, 1871. Type *Corbicula durkeei* Meek. Cretaceous of Wyoming.

Section *Corbiculina* Dall (nov.). Type *Corbicula angasi* Prime. Australia. Smaller and more delicate than *Corbicula* s. s. and viviparous.

Section *Tellinocyclas* Dall (nov.). Type *Cyrena tellinella* Deshayes Parisian Eocene. Small, heavy, elongate and acute, with short distant lateral teeth.

Section *Cyrenodonax* Dall (nov.). Type *C. formosana* Dall. Recent. Formosa. Like *Donacopsis* but inflated, without radial sulcation and having an entire pallial line.

Subgenus *Cyanocyclas* Ferussac, 1818 (restricted). Type *Corbicula limosa* Maton. South America.

Genus *Villorita* Gray, 1833. Type *V. cyprinoides* Wood. Indo China and Japan. The name was spelled *Velorita* by Gray in 1842.

Genus *Batissa* Gray, 1853. Type *B. tenebrosa* Hinds. Australia.

Genus *Egeria* Roissy, 1805. Type *Venus paradoxa* Born. Rivers of West Africa. *Galatea* Bruguiere, *Trigona* Schumacher not Jurine, *Potamophila* Sowerby, *Galateola* Fleming, and *Megadesma* Bowdich are synonymous.

Section *Egeria* s. s. Type *E. paradoxa* Born.

Section *Profischeria* Dall (nov.). Type *Fischeria Delesserti* Bernardi. West Africa. This is *Fischeria* Bernardi, 1860, not Robineau Desvoidy, 1830.

## Family **Sphæriidæ.**

Genus *Sphærium* Scopoli, 1777. Type *Tellina cornea* Linné. North Europe. *Cyclas* Lamarck not Link, *Cornea* Megerle, *Amesoda* Rafinesque, *Cycladites* Krüger, *Pisum* Bourguignat not Megerle, and *Corneola* Clessin, not Held, are synonymous.

Subgenus *Sphærium* s. s. Type *S. corneum* Linné.

Section *Cyrenastrum* Bourguignat, 1854. Type *S. solidum* Normand. France.

Section *Sphæriastrum* Bourguignat, 1854. Type *S. rivicola* Leach. England.

Subgenus *Musculium* Link, 1807. Type *Tellina lacustris* Müller. Denmark. *Calyculina* Clessin is synonymous.

Subgenus *Eupera* Bourguignat, 1854. Type *Pisidium moquinianum* Bourg. Brazil. *Limosina* Clessin is synonymous.

Genus *Corncocyclas* Ferussac, 1818, (restricted). Type *Tellina pusilla* Gmelin. Germany.

Subgenus *Corneocyclas.*

Section *Corneocylas* s. s. Type *C. pusilla* Gmelin.

Section *Phymesoda* Rafinesque, 1820. Type *Tellina virginica* Gmelin. Virginia.

Section *Pisidium* C. Pfeiffer, 1821. Type *Tellina amnica* Müller. Denmark.

Section *Cyclocalyx* Dall (nov.). Type *Pisidium scholtzii* Clessin. Germany. The umbones high and constricted below the nepionic shell, otherwise like *Corneocyclas* s. s.

Subgenus *Cymatocyclas* Dall (nov.). Type *Pisidium compressum* Prime. Cambridge, Mass. Nepionic valves flat, transversely undulated, sharply marked off from the rest of the disk, otherwise as in *Corneocyclas.*

Subgenus *Tropidocyclas* Dall (nov.). Type *Pisidium henslowianum* Sheppard. England. Nepionic valves with an oblique, elevated, radial keel and distinctly delimited from the rest of the disk. *Fossarina* Clessin, 1873, not Adams, 1863, is synonymous.

### Notes.

*Pera* Leach and *Euglesa* Leach, 1852, are synonymous with *Corneocyclas* s. s. *Galileja* Costa; *Euglesia* Leach, 1840; *Pisum* Gray, 1847, not Megerle, 1811; *Cordula* Leach; *Fluminina* Clessin; *Cycladina* Clessin; and *Rivulina* Clessin; are not separable from *Pisidium* s. s., if judged by their types; most of them are based on perfectly worthless characters. The specific determinations of Westerlund in the 'Fauna der Palæarcti-

schen Region' have been accepted in determining the synonymy of the types.

It may be of interest to state here that the group *Cyclas*, a name applied by Bruguiere, in 1798, to a heterogeneous assembly, and afterward used by Lamarck for species of the prior genus *Sphærium*, was first properly divided by Link in 1807, who segregated *Musculium* and took the largest and first species of Bruguiere as a type for the genus *Cyclas*. This was the *Venus islandica* of Linné, to which, subsequently, the names of *Cyprina* Lamarck, 1812; *Arctica* Schumacher, 1817, not Moehring, 1758; and *Cypriniadea* Rovereto, 1900, were applied. These become synonyms of *Cyclas* (Bruguiere) Link, whose only species and type is *Venus islandica* L.

VOL. XVI, PP. 9-10 FEBRUARY 21, 1903

PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# A NEW COCKLEBUR FROM NEW MEXICO.

BY T. D. A. COCKERELL.

My work on the plants of the region about Las Vegas has brought to light the interesting form of *Xanthium commune* Britton, described below. The first specimens collected were referred to Prof. E. O. Wooton, who was then working at Columbia University. He found that nothing of the kind was represented in the Columbia herbarium and concluded that the species was new. Upon his return to New Mexico I urged him to publish it, but he delayed, and after a couple of years we both became doubtful of the validity of the species, observing that nothing but the burs would separate it from *X. commune* (then called by us *X. canadense*). Later our doubts were confirmed when I found at Las Vegas a pair of burs, one of each kind, growing on the same twig. This specimen is now in the herbarium of the Agricultural College at Mesilla Park. Among hundreds of plants since observed, I have not seen another like it, nor have I seen a plant which could not at once be referred to one or the other form.

**Xanthium commune wootoni,** sp. nov.

Similar in all respects to *X. commune* Britton, but the burs more slender (greatest transverse diameter about 6 mm., beaks and prickles about

5½ mm.), and the prickles much less numerous (about 25 to the bur) and mostly stouter basally. Collected by the writer at Española, N. M. and Las Vegas, N. M. It occurs abundantly, always growing with *X. commune*.

Specimens of *X. c. wootoni* have been sent to Prof. E. L. Green and to Dr. P. A. Rydberg. The former said it was unknown to him, the latter considered it a new species.

It is, in fact, a species in the De Vriesian sense, of more than ordinary interest.

Las Vegas specimens sent to the U. S. National Herbarium may be regarded as the types (No. 404186). Other specimens showing leaves and flowers as well as burs, are in the Herbarium of the New York Botanical Garden and the Herbarium of the New Mexico Agricultural College.

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PROCEEDINGS

OF THE

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# A NEW NAME FOR THE HAWAIIAN BIRD GENUS OREOMYZA.

BY LEONHARD STEJNEGER

In 1887 I established the genus *Oreomyza* for a Hawaiian bird then described for the first time, viz. *Oreomyza bairdi*. It now appears that in the same year Pokorny gave the identical name to a genus of Tipulid insects. Fortunately it is possible to settle beyond a doubt the question which of the two has priority, since Pokorny's name was published on February 28 and mine not until July 2, thus:

*Oreomyza* Pokorny, Wiener Entomol. Zeitung, 1887, Feb. 28, p. 50.

*Oreomyza* Stejneger, Proc. U. S. Nat. Mus., 1887, July 2, p. 98.

The latter, therefore, must give way, and in order to cause as little change as possible I propose to substitute the word

**Oreomystis**

for the bird genus. The following species are now included in this genus:

1. *Oreomystis bairdi* Stejneger (type).
2. *Oreomystis mana* (Wilson).
3. *Oreomystis perkinsi* (Rothschild).
4. *Oreomystis flammea* (Wilson).
5. *Oreomystis newtoni* (Rothschild).
6. *Oreomystis maculata* (Cabanis).
7. *Oreomystis montana* (Wilson).

VOL. XVI, PP. 13-14 FEBRUARY 21, 1903

PROCEEDINGS

OF THE

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# DESCRIPTION OF A NEW QUAIL-DOVE FROM THE WEST INDIES.

BY J. H. RILEY.

[By permission of the Secretary of the Smithsonian Institution.]

While examining some doves labeled *Geotrygon mystacea* I was struck by the variations exhibited by specimens from the different parts of its range. My material has not been sufficient to work these out satisfactorily, but the following species is so very distinct that I take this opportunity of describing it.

My thanks are due to Dr. J. A. Allen, of the American Museum of Natural History, Mr. Charles B. Cory, of the Field Columbian Museum, and to Mr. Outram Bangs, of the Museum of Comparative Zoology, for the loan of specimens.

**Geotrygon sabæ**, sp. nov.

*Type.*—Adult female, No. 80,982, U. S. National Museum, Saba Island, W. I., collected by F. A. Ober.

*Characters.*—Differs from *Geotrygon mystacea* in being darker above, in having the breast light hazel passing into vinaceous-rufous (vinaceous-cinnamon in *mystacea*), the belly cinnamon-rufous, the lining of the wings darker, and the tail darker and more strongly edged with a darker shade of brown.

*Measurements.*—Wing, 170; tail, 89; exposed culmen, 21 mm.

*Remarks.*—Schlegel (Mus. Pays-Bas, Columbæ, 1873, 164) gives the type of Temminck's *Columba mystacea* as coming from the Island of Hayti. I know of no recent record of the bird from that island. Temminck's plate represents a bird without the dark rictal stripe and with lighter underparts than any specimen I have been able to examine. The U. S. National Museum possesses a specimen from Culebra Island (reported from here for the first time) that comes nearer the plate of *mystacea* than any other specimen in the series before me. I take it to represent true *mystacea* and have compared the Saba bird with it. The type of *sabæ*, though a female, is so very different from any of the other specimens before me that I am unable to explain these differences on account of sex. The dark color of the breast serves to distinguish it at a glance from *mystacea*.

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PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# A NEW CLIFF SWALLOW FROM TEXAS.

BY HARRY C. OBERHOLSER.

Mr. Ridgway has called my attention to certain differences characterizing the cliff swallow of southwestern Texas, which differences seem to warrant its subspecific separation. It may therefore be known as

**Petrochelidon lunifrons tachina**, subsp. nov.

*Chars. subsp.*—Similar to *Petrochelidon lunifrons lunifrons*, but decidedly smaller, the forehead ochraceous instead of cream color.

*Description.*—Type, adult male, No. 168,271, U. S. N. M., Biological Survey Collection; Langtry, Texas, April 26, 1901; H. C. Oberholser. Upper surface dark steel green, the forehead ochraceous, the rump rufous, the hind neck with a narrow collar of light brownish gray, succeeded anteriorly by an imperfect one of chestnut; wings and tail fuscous, with a greenish gloss, the innermost secondaries (tertials) and primary coverts with margins of pale grayish; chin, cheeks, and auriculars, continuous with the collar, chestnut; center of throat steel green; breast, and sides of throat and neck behind the chestnut, dull light brownish, the first with a strong ochraceous tinge; remainder of ventral surface white, with the sides and lower tail-coverts pale fuscous, the anal region ochraceous.

Length of wing (type), 104 mm.; tail, 45 mm.; exposed culmen, 7 mm.; tarsus, 11.5 mm.

Although seemingly most like true *P. lunifrons*, the bird above described is intermediate between *lunifrons* and *melanogastra*, approaching

in size very close to the latter. In respect to the color of the forehead, as well, its aberration from *lunifrons* is in the direction of *melanogastra*, with which also it may be found to intergrade. After due allowance has been made for individual variation which, however, does not exist to an unusual degree, the characters exhibited by this new race seem to be very constant, at least in the considerable series available for examination.

Apparently all the breeding cliff swallows of southwestern Texas ought to be referred to *tachina*, the range of which extends thence into eastern Mexico as far at least as Vera Cruz.

The following average measurements of the three forms of *Petrochelidon* here concerned have been kindly furnished by Mr. Ridgway. They relate to males, and are in millimeters.

| No. of Specimens | Name | Wing | Tail | Exposed Culmen | Tarsus | Middle Toe |
|---|---|---|---|---|---|---|
| 17 | *Petrochelidon lunifrons lunifrons* | 108.6 | 49.4 | 7.2 | 12.6 | 12.2 |
| 7 | *Petrochelidon lunifrons tachina* | 102.1 | 45.3 | 7.6 | 12.1 | 12.1 |
| 8 | *Petrochelidon melanogastra* | 103. | 46.4 | 6.8 | 12. | 11. |

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PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# DESCRIPTION OF A NEW VIREO.

BY HARRY C. OBERHOLSER.

The vireos of the *bellii* type from southwestern Texas, though in certain respects intermediate between *Vireo bellii bellii* and *Vireo bellii pusillus* seem to be sufficiently distinct from either to require a name. In view of this they may be called

**Vireo bellii medius,** subsp. nov.

*Chars. subsp.*—Similar to *Vireo bellii bellii*, but paler, more grayish above; paler and much less extensively yellow below.

*Geographical distribution.*—Southwestern Texas, and immediately adjacent portion of Mexico.

*Description.*—Type, adult male, No. 168275, U. S. N. M., Biological Survey Collection; Boquillas, Texas, May 24, 1901; H. C. Oberholser. Head and nape brownish gray; back and scapulars dull grayish olive green, the rump rather brighter; wings and tail fuscous, margined exteriorly with olive, the former crossed by two distinct dull white bars; lores grayish white; sides of head and neck pale brownish gray; underparts white, washed with yellowish across the breast; flanks and sides of body pale olive yellow; under tail-coverts yellowish.

The differences between this race and true *bellii* are most evident in the much more grayish head, the decidedly darker back, and in the restriction of the yellow of the flanks and sides—the middle of abdomen and breast being almost pure white. In size there appears to be no material difference. From *Vireo bellii pusillus* it may be distinguished by its darker, less uniform upper surface, the back being distinctly olive

green in contrast to the head and nape; the much more yellowish flanks and sides; the rather less purely white under surface; and the decidedly shorter tail.

Specimens to the westward in the range of *Vireo bellii medius* indicate intergradation with *pusillus*, and taken in connection with hardly typical examples of the latter from extreme western Texas, show pretty conclusively that to *pusillus* there belongs a trimomial name.

Average millimeter measurements of five specimens of each of these three forms are as follows:

*Vireo bellii bellii* (Kansas and Illinois): wing, 55.6; tail, 45.8; exposed culmen, 10; tarsus, 18.5; middle toe, 9.8.

*Vireo bellii medius* (Texas): wing, 54.1; tail, 46.3; exposed culmen, 9.7; tarsus, 18.5; middle toe, 9.4.

*Vireo bellii pusillus* (California): wing, 54.6; tail, 49.6; exposed culmen, 9.3; tarsus, 18.9; middle toe, 9.9.

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PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# PSILOSTROPHE, A NEGLECTED GENUS OF SOUTHWESTERN PLANTS.

BY AVEN NELSON.

The collections of Mr. Leslie N. Goodding, a student in the University of Wyoming, made in southern Utah and Nevada in the spring of 1902, are bringing to light some exceedingly interesting xerophytic plants. Among these is a shrubby *Psilostrophe* (*Riddellia*), the study of which led to an investigation of the whole genus.

The species formerly recognized are only three and one variety, and in spite of the remarkably heterogeneous mass of material found in the genus, the three names have been made to do duty for all that have been collected. The material found in the Rocky Mountain herbarium seemed to indicate some novelties, but to confirm these, Dr. J. N. Rose, Assistant Curator, U. S. National Herbarium, made it possible for me to examine the much larger series of specimens in that collection. For this favor I wish here to express my hearty thanks.

### Key to the species of Psilostrophe.

Pubescence of the stem white and densely pannose. - 1. *P. Cooperi.*
Pubescence of the stem villous or loosely floccose-lanate.
Akenes and pappus arachnoid-villous. - - 2. *P. gnaphalodes.*
Akenes and pappus glabrous.
Pappus scales lanceolate, acute.
Floral structures ceriferous; rays small.
Moderately lanate; perennial - - 3. *P. cerifera.*
Inordinately lanate; biennial - 3a. *P. cerifera biennis.*
Floral structures free from wax; rays large.
Fastigiately branched - - - 4. *P. tagetina.*
Simple stemmed - - - 4a. *P. tagetina lanata.*
Pappus scales oval, obtuse, denticulate. - - 5. *P. pumila.*
Pubescence of stem scanty, softly hirsute. - - 6. *P. sparsiflora.*

### 1. Psilostrophe Cooperi (Gray) Greene.

*Riddellia Cooperi* Gray, Proc. Am. Acad. 7:358. 1868.
*Psilostrophe Cooperi* (Gray) Greene, Pitt. 2:176. 1891.

This species needs further study. The series of specimens examined shows much variation and yet not one that tallies closely with the original description. I rather suspect, however, that the original specimens by Cooper were undersized and not typical of the species as now represented; that the description should be expanded to take in more truly shrubby forms, with leaves 4–7 cm. long, larger rays often 5 in number and with more numerous disk corollas (12–20). The pappus seems often to be of nearly entire lanceolate scales and the peduncles are far from filiform. Such amplified characters would take in all of the following, though the description as drawn by Dr. Gray excludes at least the first half of the series that follows:

L. N. Goodding, No. 752, Bunkervill, Nevada, 1902; M. E. Jones, No. 3891, Yucca, Arizona, 1884; Dr. Smart, No. 278, Arizona, 1867; J. W. Toumey, No. 6396, Tucson, Arizona, 1892; W. F. Parish, Lowell, Arizona, 1884; Coville and Funston, No. 292, Pahrump Valley, Nevada, 1891; Dr. Palmer, No. 246, S. Utah, 1887; T. S. Brandegee, Arizona, 1892; Lt. Wheeler, Nevada, 1872; Dr. Palmer, Arizona, 1869; J. W. Toumey, No. 639c, Castle Creek, Arizona, 1892; C. A. Purpus, No. 6125, Pahrump Valley, Nevada, 1898; Dr. Vasey, Tucson, Arizona, 1886.

### 2. Psilostrophe gnaphalodes DC.

*Psilostrophe gnaphalodes* DC. Prod. 7:261.1838.
*Riddellia arachnoidea* Gray, Pl. Fendl. 94. 1849.

This species is fairly uniform, though species so ticketed in the herb-

aria are often something else. As observed by Dr. Gray, the foliage is not essentially different from *P. tagetina*. One might suspect that some distributors believe the specific name refers to the pubescence of the leaves. It seems to be confined to Texas and adjacent Mexico.

Chas. Wright, No. 380, Western Texas, 1849; C. G. Pringle, No. 9040, Jaral, Mexico, 1900; F. S. and E. S. Earle, No. 446, Devil River, Texas, 1900; Mex. Bound. Surv., No. 628; L. H. Dewey, College Station, Texas, 1891; V. Havard, No. 45, Stockton, Texas, 1881; M. E. Jones, No. 3718, El Paso, Texas, 1884.

### 3. Psilostrophe cerifera, n. sp.*

Stems few to several from the enlarged crown of a ligneous taproot, or more rarely the crown raised on a short simple caudex; the stems simple or sparingly branched, 1–2 dm. long, floccose-tomentose; leaves lightly lanate, entire, lanceolate-spatulate, obtuse or acute at apex, the tapering base scarcely petioled; inflorescence corymbose, the rather small heads congested on the tips of the branches of the corymb; bracts of the narrow involucre broadly linear, in one series, rigid and closely connivent, the waxy or resinous particles with which they are sprinkled obscured by the lanate pubescence but extending to all parts of the flowers, the akenes, and even to the leaves of the plant; rays usually 3, the ligule 3–4 mm. long and nearly twice as broad, its slender tube equalling the ligule and almost equalled by the linear pappus-scales; disk flowers 10 or fewer, slightly articulately enlarged at the summit of the tube proper; akenes glabrous, not striate, somewhat 4-angled; pappus linear, nearly as long as the disk corollas.

The type is Mr. M. A. Carleton's No. 201 (in Ry. Mt. Herb.), from the Cheyenne Country, Indian Territory, June 1891; distributed by the U. S. National Herbarium. Wholly typical are Mr. Paul J. White's specimens, Woods County, Oklahoma, June 29, 1900. Mr. Hitchcock's No. 741, from the Gypsum hills of Barker County, Kansas, is undoubtedly the same, though, on account of age, the leaves are largely wanting. A specimen by Prof. Kellerman, from Kansas, 1888, is more floccose woolly and has the appearance of being merely biennial, and this may be true of Mr. Hitchcock's specimens (the number cited) also.

A very abnormal form is found in Mr. B. B. Smyth's specimens, No. 140, from Crooked Creek, Meade County, Kansas, which tends to confirm the suspicion that in more northern localities this species is altogether biennial. These may be designated:

### 3a. Psilostrophe cerifera biennis, n. var.

Larger than the species, mostly single-stemmed from the crown, often freely and intricately branched above, densely and permanently floccose

*A paratype of *Psilostrophe cerifera* A. Nelson is in the National Herbrium under the herbarium number 26,577.

throughout; crown leaves and lower stem leaves wanting at the time of flowering.

Type of the variety, as cited above, in the National Herbarium (No. 26,577).

### 4. **Psilostrophe tagetina** (Nutt.) Greene.

*Riddellia tagetina* Nutt. Trans. Am. Phil. Soc., 7:361. 1841. Gray, Syn. Fl., 317, probably in part only.

*Psilostrophe tagetina* (Nutt.) Greene Pitt., 2:176. 1891.

Even after segregating the species indicated as new in this paper the specimens at hand show considerable variation and may still be an aggregate, but to the writer the difference seems to be vegetative and not congenital. Judging by the specimens the center of distribution is New Mexico.

Specimens examined.—New Mexico: E. O. Wooton, 1894; id, No. 6, 1897; F. S. and E. S. Earle, No. 374, 1900; A. A. and E. G. Heller, No. 3739, 1897; J. G. Smith, No. 25, 1897; G. R. Vasey, 1881; A. Fendler, No. 461, 1847; J. T. Rothrock, No. 463, 1874. Arizona: Walter Hough, No. 115, 1896; Comanche Plains, J. M. Bigelow, 1853.

Somewhat aberrant and mostly distributed as *Riddellia arachnoidea*, are the following from Texas: L. H. Dewey, 1891; G. W. Letterman, No. 25, 1882; Newberry, 1859; Mex. Bound. Surv., No. 628.

Still more aberrant and probably worthy of a varietal name are some other Texan specimens which may be called:

### 4a. **Psilostrophe tagetina lanata,** n. var.*

Larger than the species, simple-stemmed or divaricately branched, long-lanate, floccose-woolly at the crown; leaves simple or pinnatifid and some of the stem leaves (often nearly all of them) sometimes deeply pinnately lobed; the lobes oblong-linear, entire or toothed; rays usually larger than in the species.

Specimens examined.—Texas: G. R. Vasey, 1881 (type); Mex. Bound. Survey, No. 629 (paratype); W. L. Bray, No. 416, 1899; (?) J. Reverchon, 1879. Type and paratype in National Herbarium.

### 5. **Psilostrophe pumila** (Jones) n. comb.

*Riddellia tagetina pumila*, Jones, Proc. Cal. Acad. Sci., (2) 5:700, 1895.

*Psilostrophe Bakeri* Greene, Pl. Baker. 3:29. 1901.

This perfectly valid species is certainly the handsomest one in the genus. That Mr. Jones' variety is the same as Dr. Greene's species

*The type and paratype of *Psilostrope tagetina lanata* A. Nelson are in the National Herbarium under the herbarium numbers, respectively, of 156,585 and 26,581.

admits of no question. The following series of specimens, some distributed as one and some as the other, are remarkably homogeneous, as might be expected, since most of them are from type locality, which is the same for both. A fine example of this by Mr. Osterhout shows that the species under favorable conditions is not unusually low.

Specimens examined. Grand Junction, Colorado, M. E. Jones, 5474 (type). June, 1894; id. May, 1895; C. F. Baker, No. 106; S. G. Stokes, 1900; D. A. Saunders, No. 405, 1893; C. F. Baker, No. 14, Montrose; J. H. Cowen, No. 276, Hotchkiss; G. E. Osterhout, Rifle, Colorado.

### 6. Psilostrophe sparsiflora (Gray) n. comb.

*Riddellia tagetina sparsiflora* Gray, Syn. Fl. 1:318. 1886.

Stems 1–3 dm. high, singly from the several crowns of the woody root, noticeably striate, green but with a sparse hirsute pubescence which extends to the leaves; leaves alternate, linear, often narrowly so, rarely with one or two lateral teeth, 3–5 cm. long; the lower usually subspatulate and decurrent upon the long slender petiole; heads corymbose on the slender pedunculate uppermost branchlets; ray flowers 3, the ligule 7–8 mm. long and noticeably broader, sprinkled with minute resin or wax particles, the tube very short and only partially closed, the style protruding from the fissure; disk flowers 10 or fewer, tubular, fully twice as long as the unequal, acute or more or less lacerate-tipped pappus paleæ; akenes angled, not perceptibly striate.

This seems to be a singularly good species. I take as probably typical, of the plant that Dr. Gray so named as a variety, the form that occurs in Utah. That is truly with few heads. The Arizonan form is more freely flowered and with more numerous and more fascicled stems, but in all essentials they are the same. The green almost glabrous aspect, the regular alternation of the slender axillary branches and the almost umbellately-clustered slender-peduncled heads are characters quite peculiar to this species.

Specimens examined.—Utah: M. E. Jones, No. 5296, Pahria Canyon, 1894; Dr. Palmer, No. 246½, Southern Utah, 1877. Arizona: J. B. Leiberg, No. 5624, 1891; L. F. Ward, 1891; D. T. MacDougal, No. 229, 1898; H. H. Rusby, 1883; F. H. Knowlton, Nos. 182 and 272, 1889; M. E. Jones, Nos. 4038 and 6050a, 1884 and 1894; J. W. Toumey, No. 638, 1892.

I place here somewhat doubtfully Mr. Jones's No. 5291i, Pahria, Utah, 1894.

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PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# TWO NEW SPERMOPHILES FROM ALASKA.

BY WILFRED H. OSGOOD.

In the light of recently secured material two forms of the well-known Alaska ground squirrels or spermophiles appear to be undescribed. Specimens of both forms have been in the National Museum for some years, but the lack of material from Hudson Bay and other important localities has heretofore made it difficult to determine their relationships. For the opportunity of describing these new forms and for the freedom of the Biological Survey and National Museum collections I am indebted to C. Hart Merriam and Gerrit S. Miller, Jr.

**Citellus* plesius ablusus,** subsp. nov.

*Type* from Nushagak, Alaska. No. 119,815, United States National Museum, Biological Survey Collection, ♂ ad., September 16, 1902. W. H. Osgood and A. G. Maddren. Original No. 2043.

*Characters.*—Similar to *C. plesius*† but larger; adult in fall with the hairs of the tail with at least two and often more annulations of black; skull larger and heavier than that of *plesius* and slightly different in detailed characters; somewhat similar to *C. parryi* and *C. barrowensis* but

* For use of the name *Citellus* instead of *Spermophilus* Cf. Allen, Bull. Am. Mus. Nat. Hist. XVI, pp. 375-376, 1902.

† Specimens now available indicate that *C. plesius* is entirely distinct from *C. parryi* and the several long-tailed forms related to it.

tail much shorter; somewhat similar to *C. kodiacensis* but molar teeth actually and relatively larger; color less mixed with dusky.

*Color.*—Type (fall moult nearly complete): Sides of head, neck, and to a great extent, shoulders and nape, pale gray darkened in places by a blackish slate undercolor; eye-ring and subauricular spot pure white; forehead and crown burnt umber; middle of back and rump vandyke brown spotted with distinct quadrate grayish white spots from one-fourth to one-half an inch apart; underparts dull grayish white overlaying blackish slate except on middle of belly, where vestiges of an earlier pelage show creamy buff; under side of tail dark tawny medially, lateral hairs of new pelage with three to four black or dusky annulations each and a broad grayish white tip, hairs of pencil with one or two narrower dusky annulations and a broader black subterminal section about 27 mm. in width; tip of tail grayish white; feet creamy white.

*Skull.*—Similar to that of *C. plesius* but larger and heavier; nasals longer, relatively narrower, and more constricted posteriorly; molar teeth actually about as in *plesius*, therefore relatively small; molar teeth much smaller than in *barrowensis* but larger than in *kodiacensis*.

*Measurements.*—Type: Total length, 394; tail vertebræ, 103; hind foot, 60. Average of seven adult males from the type locality: Total length, 374 (359–394); tail vertebræ, 102 (95–108); hind foot, 59 (56–61). Skull of type: Basilar length of Hensel, 49; occipito-nasal length, 57.5; zygomatic breadth, 38; length of nasals, 21; alveolar length of molar series, 13.3.

*Remarks.*—Spermophiles from the naturalized colony at Unalaska and from points on the Alaska Peninsula have in late years been tentatively referred to *Spermophilus empetra*, representing the form which will now be known as *Citellus parryi*, as in the absence of specimens from other localities this was the only safe course. The colony at Unalaska was stocked some years ago by Mr. Samuel Applegate, a Signal Service observer, who took the live squirrels from Nushagak, then called Fort Alexander, and liberated them at Unalaska. During the past year I secured good series of spermophiles from Nushagak and the region of the base of the Alaska Peninsula. These of course agree with others from Unalaska and are easily separable from *plesius* and *kodiacensis*, the only forms with which they need close comparison.

### **Citellus nebulicola**, sp. nov.

*Type* from Nagai Island, Shumagin Ids., Alaska. No. 59,145 United States National Museum, ♀ ad., June 24, 1893. C. H. Townsend.

*Characters.*—Similar to *Citellus kodiacensis* but smaller, shorter-tailed and apparently paler colored; skull small and light with relatively narrow braincase and basioccipital.

*Color.*—Similar in general to that of *C. kodiacensis* but paler, the black and black-tipped hairs being much less numerous and the dusky about the nape and sides of head being much reduced; tail also with less black than in *kodiacensis*. No. 16,424, yg. ♂, buff phase: Underparts

chiefly ochraceous, including chest, belly, forelegs, sides of face and neck; under side of tail tawny margined with buff and submargined with black for its distal half; forehead and crown mars brown; back nape, rump, etc. uniformly and closely spotted with creamy white quadrate spots on a ground of mixed black and russet.

*Skull.*—Similar to that of *C. kodiacensis* but smaller and lighter; molar teeth actually about as in *kodiacensis*, decidedly smaller than in *ablusus;* nasals rather narrow and elevated along the median suture as in *kodiacensis;* basioccipital much narrower; audital bullæ higher and fuller; braincase narrower.

*Measurements.*—Type (dry skin): Total length, 340; tail vertebræ, 82; hind foot, 53. Skull of type: Basilar length of Hensel, 42; occipito-nasal length, 49; zygomatic breadth, 32; length of nasals, 18; alveolar length of molar series, 12.

*Remarks.*—The small series of five specimens of *C. nebulicola* which I have seen contains but one skin in good pelage and this is unaccompanied by a skull. The others, including the type, are rather worn and unsatisfactory for comparison but are paler than *kodiacensis* in similar worn condition. The one skin showing fresh pelage is in a very ochraceous phase and shows much less mixture of blackish than *kodiacensis* in the same phase or stage of pelage. It is probable then that *nebulicola* will prove to be well characterized as far as color is concerned, at least in contrast with *kodiacensis*. The northern spermophiles of this group may be subdivided into two groups, one containing the large long-tailed forms with heavier teeth—*parryi*, *barrowensis*, and *osgoodi*—and another containing the smaller shorter-tailed forms with lighter teeth—*plesius*, *ablusus*, *kodiacensis*, and *nebulicola*. In the second group *kodiacensis* and *nebulicola* fall together on account of their smaller molar teeth as contrasted with *plesius* and *ablusus*. According to reports which I received from natives at Kodiak, the spermophiles were first brought there some years ago from North Semidi Island which lies a short distance west of Kodiak and between Kodiak and the Shumagin Islands. The relationship shown between *C. kodiacensis* and *C. nebulicola* is thus quite in accordance with their geographic positions.

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PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# TWO NEW PLANTS FROM NEW MEXICO.

BY AVEN NELSON.

Mr. and Mrs. Cockerell in their many collecting trips within the confines of New Mexico secure numerous specimens of great interest because of their limited representation in the herbaria or because of the fuller knowledge gained of the limits and variation of the species. As might be expected, in so large and even yet imperfectly understood a field as New Mexico, novelties are secured from time to time. The collectors have permitted the writer to study many of their numbers. Two of these are now proposed as new species.

**Nyctaginia Cockerellae,** n. sp.

Perennial, decumbent-spreading, with assurgent branches, 3–5 dm. high; stems and branches somewhat furrowed or angular, rough glandular-pubescent especially upward; leaves triangular-hastate, 4–9 cm. long, somewhat fleshy, rough-pubescent or glabrate, mostly acute at apex, the margin irregular, abruptly contracted to the rather stout petiole which is about half the length of the blade; involucre 8–12 flowered; its bracts linear-lanceolate, about 1 cm. long; calyx about 28 mm. long, trumpet-shaped; its long slender tube pale-green, clammy glandular-hairy; its limb of 6 short plicate emarginate crimson-scarlet lobes; stamens usually 6 (rarely 8), exserted some 12–13 mm.; the slender filaments united with the tube from the throat down; style exceeding the stamens and like them magenta colored; fruit lightly ribbed.

A most distinct species, differing from *N. capitata* Chois. in its larger and subhastate leaves; in its calyx which has 6 emarginate lobes in contrast with 5 entire ones; in having 6 or 8 stamens which are united with the tube, in contrast with 5 nearly free ones; also in color and probably in duration.

The type (No. 59) was collected by Mrs. Wilmatte P. Cockerell (in whose honor the species is named) near Roswell, New Mexico, August, 1902. Mrs. Cockerell is an industrious student of the New Mexican flora and has found many interesting forms. It has also been collected near the same place by F. S. and Esther S. Earle, in 1900, No. 324. Type in Rocky Mountain Herbarium.

**Cryptanthe dicarpa,** n. sp.

Stems few to several from a very slender taproot, 8–15 cm. high, slender, moderately pubescent with rather long white softly-hispid widely-spreading hairs; leaves linear or very narrowly oblanceolate, 2–4 cm. long; spikes at length loosely-flowered; calyx-lobes distinct to the base, narrowly linear, almost reduced to the distinctly thickened midrib, the nutlets showing between them, about 3 mm. long in fruit; corolla white, its tube slightly dilated near the middle where the anthers are situated; nutlets grayish-white, only two maturing, these dissimilar, one larger more persistent and scabrous-roughened under a lens, the other minutely roughened-papillose.

In a general way related to *C. crassisepala* and its allies but slender-stemmed and quite distinct in its fruit characters. The type is No. 30, collected by T. D. A. Cockerell, at Mesilla Park, N. M. (Middle Sonoran Zone), and is deposited in the Rocky Mountain Herbarium.

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PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# DESCRIPTIONS OF ELEVEN NEW MALAYAN MOUSE DEER.

BY GERRIT S. MILLER, JR.

[By permission of the Secretary of the Smithsonian Institution.]

The United States National Museum contains about two hundred Malayan mouse deer, most of which have been collected and presented by Dr. W. L. Abbott.* Two specimens of un-

*See the following papers by the author of the present article:

Mammals collected by Dr. W. L. Abbott on Islands in the South China Sea. <Proc. Washington Acad. Sci., II, pp. 203–246. August 20, 1900 (*T. rufulus*, p. 227).

A new Mouse Deer from Lower Siam. <Proc. Biol. Soc. Washington, XIII, pp, 185–186, December 21, 1900 (*T. canescens*, p. 185).

Mammals collected by Dr. W. L. Abbott on Pulo Lankawi and the Butang Islands. <Proc. Biol. Soc. Washington, XIII, pp. 187–193. December 21, 1900 (*T. umbrinus*, p. 191).

Mammals collected by Dr. W. L. Abbott on the Natuna Islands. <Proc. Washington Acad. Sci., III, pp. 111–138. March 26, 1901 (*T. bunguranensis*, p. 113, *T. pallidus*, p. 116).

Mammals collected by Dr. W. L. Abbott in the region of the Indragiri River, Sumatra. <Proc. Acad. Nat. Sci. Philadelphia, 1902, pp. 143–159. June 11, 1902 (*T. pretiosus*, p. 144, *T. nigricollis*, p. 145).

Two new Malayan Mouse Deer. <Proc. Biol. Soc. Washington, XV, pp. 173–175. August 6, 1902 (*T. ravus*, p. 173, *T. borneanus*, p. 174).

Mammals collected by Dr. W. L. Abbott on the coast and islands of Northwest Sumatra. <Proc. U. S. National Museum, XXVI, pp. 437–484. February 3, 1903 (*T. amœnus*, p. 439, *T. jugularis*, p. 440, *T. brevipes*, p. 443, *T. russeus*, p. 444).

usual interest have, however, been recently obtained through the kindness of Mr. B. S. Rairden, United States Consul at Batavia, Java. Study of this material as it was received has already led to the discovery of thirteen new forms. To this number eleven are now added, none of which appears to have hitherto been described and named.

### **Tragulus lutescens,** sp. nov.

*Type.*—Adult male (skin and skull) No. 115,507 United States National Museum. Collected on Pulo Sugi Bawa, Rhio Archipelago, September 2, 1902, by Dr. W. L. Abbott. Orginal number 2011.

*Characters.*—A member of the *napu* group somewhat resembling *Tragulus canescens* of the Malay Peninsula, but not as large, and color much more yellowish; dark nape stripe present but not sharply defined; dark throat stripes heavily shaded with black.

*Color.*—Type: Back orange-buff, heavily clouded with blackish brown, but latter color not in excess of former. On sides the orange-buff fades rather abruptly through straw yellow to cream color, the black clouding at the same time becoming less noticeable and producing a finer grizzle, but this region is not distinctly contrasted with the back. Coarse fur of shoulders, neck, and nape orange-buff, of a tint somewhat lighter and duller than that of backs, and everywhere mixed with blackish hairs. Along median line these are so much in excess as to produce a broad dark stripe slightly speckled with yellowish and fading without sharp line of demarkation into color of sides of neck. Elsewhere the black produces a mere inconspicuous grizzle in the orange-buff. The dark nape stripe is continued forward between ears and eyes nearly to muzzle. Pale superciliary stripe well defined, concolor with cheeks and sides of neck. Over middle of eye it is about 10 mm. in width. Throat pattern normal, *the two dark stripes with only a little more yellow than in nape band.* Collar narrow but distinct, concolor with sides of body, therefore noticeably lighter than longitudinal dark bands. A clear orange-buff line extends forward from side of neck at level of front of dark throat stripes nearly to naked chin area where it meets its fellow of the opposite side. In a second specimen this line is rather wider than the white throat stripes and the two unite to form a broad patch extending back 30 mm. from naked chin area. Chest, belly, and inner surface of legs white, the chest with a narrow brownish median line, the belly faintly washed with yellow. In a second specimen this wash is much more extensive and many of the hairs producing it are tipped with blackish, causing a distinct clouding. Outer surface of legs like sides but slightly more yellow, the hind legs brightening to ochraceous above heel. Tail white beneath and at tip, dull orange-buff above, very slightly grizzled by a few blackish hair tips.

*Skull and teeth.*—The skull and teeth, except for their markedly smaller size, do not differ appreciably from those of *Tragulus canescens* and *T. napu*.

*Measurements.*—External measurements of type: total length, 563; head and body, 488; tail vertebræ, 75; hind foot, 131 (117); ear from meatus, 33; ear from crown, 28. Measurements of an adult female from the type locality: total length, 600; head and body, 510; tail vertebræ, 90; hind foot, 131 (117); ear from meatus, 34; ear from crown, 30.

Cranial measurements of type: greatest length, 105 (110)*; basal length, 96.4 (105); basilar length, 90 (99); occipito-nasal length, 96 (99); length of nasals, 32 (29); greatest breadth of both nasals together, 10 (12); diastema, 9 (9.6); zygomatic breadth, 44 (49); least interorbital breadth, 36 (30); mandible, 82 (89); maxillary toothrow (alveoli), 34.6 (40); maxillary premolars (crowns), 17.4 (20); mandibular toothrow (alveoli), 39 (46); mandibular premolars (crowns), 18 (22).

*Weight.*—Type, 2.5 kg.; adult female from type locality, 3 kg.

*Specimens examined.*—Two, both from Pulo Sugi Bawa.

*Remarks.*—This napu is so readily distinguished from all previously known species by its small size, normal throat pattern and strongly yellowish color that it needs no special comparison with any. The two specimens are closely similar to each other except that the female is, as usual, the larger. Some trifling variations in color have already been noted.

### **Tragulus flavicollis**, sp. nov.

*Type.*—Immature† female (skin and skull) No. 115,505 United States National Museum. Collected on Pulo Sugi, Rhio Archipelago, August 24, 1902, by Dr. W. L. Abbott. Original number 1957.

*Characters.*—Much like *Tragulus lutescens* but yellower; nape stripe absent, and dark throat stripes very slightly shaded with black.

*Color.*—The general color is essentially as in *Tragulus lutescens*, but the tawny element is everywhere more distinctly yellow, this most noticeable on cheeks and neck. On nape the sprinkling of blackish hairs is as inconspicuous as at sides of neck, so that there is no trace of a dark median stripe. Throat pattern normal, the dark bands very slightly more sprinkled with black than sides of neck. Collar very narrow. The anterior yellowish bands are only about 15 mm. in length, leaving the entire throat from chin to main throat stripes pure white. Underparts as in the female specimen of *Tragulus lutescens*, but with less blackish clouding.

*Skull and teeth.*—I can detect nothing to distinguish the skull and teeth from those of *Tragulus lutescens*.

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*Measurements in parenthesis are those of an adult male *Tragulus canescens* from the Endau River, Johore. (No. 112,583.)

†Uterus contained a small embryo. Milk premolars still in place, though much worn.

*Measurements.*—External measurements of type: total length, 600; head and body, 520; tail vertebræ, 80: hind foot, 132 (117); ear from meatus, 37; ear from crown, 34. Skull: greatest length, 105; basal length, 98; zygomatic breadth, 44.

*Weight.*—3 kg.

*Specimens examined.*—One, the type.

*Remarks.*—In the character of its neck and throat markings *Tragulus flavicollis* agrees with the small, bright *T. rufulus* of Tioman Island and represents the opposite extreme from *Tragulus annæ*, in which the entire region is clear black. It only remains to discover species with the white of the throat obliterated by the encroachment of fulvous on the white bars to complete the possible variations of this pattern.

### **Tragulus formosus,** sp. nov.

*Type.*—Adult male (skin and skull) No. 115,511 United States National Museum. Collected on Pulo Bintang, Rhio Archipelago, August 19, 1902, by Dr. W. L. Abbott. Original number 1907.

*Characters.*—A member of the *napu* group similar in general appearance to *Tragulus pretiosus* of Linga Island, but with dark nape stripe less defined, fulvous of neck and throat more red, and underparts usually more washed with yellowish. Premolars larger than in *T. pretiosus*.

*Color.*—Type: Upperparts bright orange-ochraceous darkening to ochraceous-rufous on neck and outer surface of legs and lightening to orange-buff on sides of body, the hairs everywhere drab at base and black at tip. The black tips are most conspicuous over middle of back, where they produce a heavy dark shading a little in access of the orange-ochraceous. On sides of body they are slightly less noticeable, and on sides of neck and head and outer surface of legs would readily escape observation. Crown and median line of neck black, both heavily sprinkled with ochraceous-rufous, the nape stripe so much so as to form no striking contrast with surrounding parts. Superciliary stripe distinct, about 7 mm. wide above eye, concolor with cheeks and sides of neck. Muzzle and ears blackish. Throat markings normal, the hairs of the dark bands blackish at base and heavily annulated with bright ochraceous-rufous. Collar narrow but distinct, its color intermediate between that of neck and sides of body. Underparts much like sides, but with a drab cast, except a pure white area on chest and another on hypogastric region, the former partly divided by a narrow brownish median line. The posterior white area is continued down inner side of hind legs, but that on chest is separated from white of inner surface of front legs by a narrow yellowish drab line. Tail ochraceous-rufous above, pure white below and at tip.

*Skull and teeth.*—I cannot see that the skull differs from that of *Tragulus pretiosus*. The permanent premolars both above and below, are, however, distinctly larger than in the related animal.

*Measurements.*—External measurements of type: total length, 600;

head and body, 530; tail vertebrae, 70; hind foot, 137 (124); ear from meatus, 39; ear from crown, 36. Average of four adult males from the type locality: total length, 613 (600-631); head and body, 536 (530-546); tail vertebræ, 77 (70-85); hind foot, 140 (137-142); hind foot without hoofs, 125.5 (124-127). Average of three adult females from the type locality: total length, 654 (620-693); head and body, 566 (535-593); tail vertebrae, 88 (80-100); hind foot, 141 (137-144); hind foot without hoofs, 126 (122-129).

Cranial measurements of type: greatest length, 106 (108)*; basal length, 99 (101); basilar length, 94 (95); occipito-nasal length, 97 (99); length of nasals, 33 (33.6); greatest breadth of both nasals together, 10.6 (11.6); diastema, 10 (11); zygomatic breadth, 47 (49); least interorbital breadth, 27 (29); mandible, 86.4 (88); maxillary toothrow (alveoli), 37 (36); maxillary premolars (crowns), 19 (18); mandibular toothrow (alveoli), 42 (42); mandibular premolars (crowns), 19 (18.4).

*Weight.*—Type, 3 kg. Average of four adult males, 3.5 (3-3.7). Average of three adult females, 4 (3-4.3).

*Specimens examined.*—Nine, all from Pulo Bintang.

*Remarks.*—Though rather closely related to *Tragulus pretiosus* the napu of Bintang is readily distinguishable from that of Linga by its more intense color, particularly of the throat markings and neck, and by the larger premolars.

### Tragulus focalinus, sp. nov.

1777. "*Animalculus ex Java acceptus*" Pallas, Spicilegia Zoologica, fasc. XII, p. 18, footnote under *Antilopepygmæa*. No name.

1788. *Moschus javanicus* Gmelin, Syst. Nat., XIII ed., I, p. 174. Based on Pallas. Not *Cervus javanicus* Osbeck, 1765, or *Tragulus javanicus* of most recent authors.

1858. *Tragulus pelandoc* Blyth, Journ. Asiat. Soc. Bengal, XXVII, p. 277. Not *Moschus pelandoc* H. Smith, 1827.

1864. *Tragulus javanicus* A. Milne Edwards, Annales des Sciences Naturelles, 5e sér., Zoologie, II, p. 157. Not *Cervus javanicus* Osbeck.

1902. *Tragulus pelandoc* Stone and Rehn, Proc. Acad. Nat. Sci. Philadelphia, pp. 131, 132, June 4, 1902. Not *Moschus pelandoc* H. Smith, 1827.

*Type.*—Adult female (skin and skull) No. 120,574 United States National Museum. Collected near Buitenzorg, Java, in October or November, 1902. Received from B. S. Rairden, U. S. Consul at Batavia.†

*Characters.*—A member of the *kanchil* group distinguished from all

* Measurements in parenthesis are those of the type of *Tragulus pretiosus*.

† Under date of November 17, 1902, Mr. Rairden writes: "I have had considerable difficulty in obtaining these animals, and am indebted to Dr. van Romburgh of the Botanic Gardens at Buitenzorg for assistance."

others now known by the great width and distinctness of the tawny superciliary stripes, and by the grizzled gray neck strikingly contrasted with tawny body and head; no dark nape stripe; throat markings normal.

*Color.*—Type: Back raw-sienna, fading laterally through buff to the cream-buff of sides, the hairs everywhere ecru-drab at base and blackish at tip. The black tips produce a faint dark median area along back, but at sides the buff and cream-buff predominate. The grizzle produced by the dark and light colors is everywhere very fine and inconspicuous. Entire neck coarsely grizzled gray, the individual hairs black, each with a buffy white band 2-4 mm. in width at tip or just below. The gray area begins immediately behind cheeks and ears and continues to front of shoulder. At each end it passes abruptly into color of neighboring region. Anteriorly it shows a tendency to darken in the median line, but not enough to produce a dark nape band. Crown blackish, the hairs with dull inconspicuous tawny annulations. Cheeks and superciliary stripe dull orange-buff, a little speckled by dark hair tips, *the superciliary stripe nearly as wide as the median dark area.* Throat markings normal, the transverse bands united in front, and nearly concolor with neck, though slightly buff tinged. Collar like sides of body, but more strongly grizzled. Underparts and inner surface of legs pure white. Outer surface of legs raw-sienna, much brighter and more tinged with red on thighs. Tail raw-sienna above, pure white below and at tip. A second specimen from the type locality (immature male, No. 120,573) is in all respects similar except that the light annulations on neck are almost pure white, and the median line of chest and belly is washed with orange buff from just behind axillæ to level of thighs.

*Skull and teeth.*—The skull closely resembles that of *Tragulus kanchil* except that the rostrum is shorter and the audital bullae (in the two skulls examined) are narrower. Teeth as in *Tragulus kanchil.*

*Measurements.*—External measurements of type (from well made skin): total length, 410; head and body, 360; tail vertebræ, 50; hind foot, 105 (95); ear from meatus, 33; ear from crown, 26. Measurements of an immature male from the type locality (from well made skin): total length, 410; head and body, 365; tail vertebræ, 45; hind foot, 110 (100); ear from meatus, 30; ear from crown, 25.

Cranial measurements of type: greatest length, 88 (90);* basal length, 81 (82); basilar length, 77 (76); occipito-nasal length, 82 (82); length of nasals, 21 (21.6); greatest breadth of both nasals together, 12 (12); diastema, 10 (8.8); zygomatic breadth, 41 (39); least interorbital breadth, 26 (26); mandible, 65 (69); maxillary toothrow (alveoli), 32.4 (30.2); maxillary premolars (crowns), 16.2 (16.8*); mandibular toothrow (alveoli), 36 (35); mandibular premolars (crowns), 16 (17†).

*Specimens examined.*—Two, both from the type locality.

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*Measurements in parenthesis are those of the immature male already referred to.

†Milk teeth.

*Remarks.*—The gray neck and broad, yellowish superciliary stripe immediately distinguish *Tragulus focalinus* from all other known members of the genus.

Through the kindness of Mr. Witmer Stone of the Academy of Natural Sciences of Philadelphia, I have before me the Javan specimen recorded by Stone and Rehn as *Tragulus pelandoc*. It is an adult male (permanent dentition in place, but unworn) with colors somewhat faded from long exposure to light. In color pattern it exactly agrees with the male of *Tragulus focalinus*, except that the transverse throat stripes do not meet in front, a character which is doubtless individual. In size, however, it so much exceeds either of the specimens of *T. focalinus* (hind foot, 116; greatest length of skull, 95) as to suggest that it represents a distinct form.

The specific name *pelandoc* has been twice applied to a gray-necked *Tragulus*, by Blyth in 1858, and by Stone and Rehn in 1902. It was originally based, however, on the "Pelandok" of Raffles (Trans. Linn. Soc. London, XIII, p. 263, 1822) an animal which cannot be positively identified, but which is, so far as Raffles' account* and our present knowledge are concerned, not different from the *Tragulus kanchil* of Sumatra.

### Tragulus virgicollis, sp. nov.

*Type.*—Adult male (skin and skull) No. 83,941, United States National Museum. Collected at altitude of 3000 feet on Mt. Dulit, Sarawak, Borneo, in June, 1895, by Ernest Hose and Charles Hose.

*Characters.*—Largest known member of the *kanchil* group (hind foot about 130). General color lighter and more yellow than in *Tragulus kanchil;* nape stripe clear black, narrow, and very sharply defined.

*Color.*—Type: General color above buff-yellow, heavily clouded with black on back, slightly on sides, where the ground color becomes paler. Cheeks and neck clear orange-buff, the former somewhat bleached and grizzled. Nape stripe clear black, sharply defined, only about 12 mm. in width. Crown brownish, faintly grizzled with yellowish. Superciliary stripe narrow and obsolete, though faintly visible in certain lights. Throat pattern normal, the oblique stripes united in front. Both collar and oblique stripes are essentially concolor with sides of neck, though the latter are rather heavily clouded with dark brown. Underparts and inner surface of legs white. Median line with a dull buff-yellow stripe, narrow and tinged with brownish anteriorly, about 35 mm. wide at middle of belly. Tail dull yellowish brown above, pure white below and at tip.

*Skull and teeth.*—The skull is similar to that of *Tragulus kanchil* ex-

* "The Pelandok is the least of the three [the others are the napu and the kanchil] in point of height, but has proportionably a larger and heavier body: it has also a larger eye." The context indicates that this statement rests on the authority of native accounts of the species.

cept that it is larger and the rostral portion is more elongate. Teeth essentially as in the Sumatran animal, though the premolars appear to be less robust.

*Measurements.*—External measurements of type (from well made skin): total length, 560; head and body, 470; tail vertebræ, 90; hind foot, 31.4 (19); ear from meatus, 35.6; ear from crown, 29.

Cranial measurements of type: greatest length, 98 (92)*; basal length, 90 (86); basilar length, 86 (79); occipito-nasal length, 92 (88); length of nasals, 30.6 (30); greatest breadth of both nasals together, 13.8 (13.4); diastema, 11 (7); zygomatic breadth, 42 (40); least interorbital breadth, 27 (26); mandible, 75 (70.6); maxillary toothrow (alveoli), 32 (31); maxillary premolars (crowns), 15.4 (16); mandibular toothrow (alveoli), 36.4 (36); mandibular premolars (crowns), 16 (16.4).

*Specimens examined.*—Three, the type from Mount Dulit, an adult male from Kinabatigan River and a female from the neighborhood of Sandakan.

*Remarks.*—The two specimens from British North Borneo have been so injured by the action of a preservative fluid that their color cannot be compared with that of the type. The color pattern is, however, the same. In general color the Bornean kanchil is not unlike *Tragulus ravus* of the Malay Peninsula, but the back is more heavily clouded relatively to the sides, and the nape stripe is of a very different character. In *Tragulus kanchil* the black clouding on both back and sides is noticeably in excess of the light element in the color, while in the Bornean animal this is true of the back only and even here to a distinctly less degree than in the Sumatran form.

### **Tragulus natunæ,** sp. nov.

1894. *Tragulus javanicus* Thomas and Hartert, Novitates Zoologicæ, I, p. 660. September, 1894. Not *Cervus javanicus* Osbeck.

1895. *Tragulus javanicus* Thomas and Hartert, Novitates Zoologicæ, II, p. 492. December, 1895. Part, included *T. pallidus.*

1901. *Tragulus javanicus* Miller, Proc. Washington Acad. Sci., III, p. 115. March 26, 1901.

*Type.*—Adult female (skin and skull), No. 104,614 United States National Museum. Collected on Bunguran Island, North Natunas, July 9, 1900, by Dr. W. L. Abbott. Original number, 555.

*Characters.*—In general similar to *Tragulus kanchil,* but smaller (hind foot of females 112-118 mm.) and more yellow.

*Color.*—The color pattern in all its details exactly resembles that of *Tragulus kanchil* but the ground color of upperparts is bright tawny-ochraceous instead of yellowish buff, and the black clouding is not in excess of the ground color. Nape band, broad and conspicuous, slightly

* Measurements in parenthesis are those of an adult male *Tragulus kanchil* from Tapanuli Bay, Sumatra (No. 114,426).

speckled by the yellowish annulations of some of the hairs, its lateral boundaries not very sharply defined. Crown dull brown, distinctly not as dark as in *T. kanchil*, and with most of the hairs noticeably annulated. Throat markings normal, the transverse dark bands united anteriorly. Both transverse bands and collar are ochraceous, but the former are distinctly clouded with a darker brown, much less so, however, than in *Tragulus kanchil*. Underparts with the usual yellowish markings; these not as dark as in *T. kanchil* and showing more of a tendency to spread laterally.

*Skull and teeth.*—The skull closely resembles that of *Tragulus virgicollis*, having a more elongate rostrum than in *T. kanchil*. This is particularly noticeable when the skulls are viewed from the side. The teeth do not, apparently, differ from those of the related species, but in the single male skull the premolars, both above and below, are remarkably heavy, and the first maxilliary tooth is strongly imbricated over the second.

*Measurements.*—External measurements of type: total length, 523; head and body, 460; tail vertebræ, 63; hind foot, 118 (106); ear from meatus, 31; ear from crown, 26. Average of five adult females from the type locality: total length, 524 (520-532); head and body, 468 (460-482); tail vertebræ, 58 (50-70); hind foot, 116 (112-118); hind foot without hoofs, 103 (100-106). Skull of type: greatest length, 97; basal length, 92; zygomatic breadth, 43; diastema, 12.

*Weight.*—Type 1.8 kg. Average of five females from Bunguran Island, 2 (1.8-2.3).

*Specimens examined.*—Five skins and one extra skull, all from the type locality.

*Remarks.*—Although *Tragulus natunæ* approaches the Bornean *T. virgicollis* in its elongated rostrum and yellow color it is readily distinguishable by its small hind foot and broad, not sharply defined nape stripe. The bright color alone is enough to separate it from *Tragulus kanchil*. With *Tragulus pallidus* of Pulo Laut, North Natunas it needs no comparison.

### **Tragulus subrufus,** sp. nov.

1902. *Tragulus javanicus* Miller, Proc. Acad. Nat. Sci. Philadelphia, p. 143. June 11, 1902. Not *Cervus javanicus* Osbeck.

*Type.*—Adult female (skin and skull) No. 113,119 United States National Museum. Collected on Sinkep Island, South China Sea, September 5, 1901, by Dr. W. L. Abbott. Original number, 1285.

*Characters.*—Similar to *Tragulus kanchil* but color above slightly more yellow; and underparts much more extensively washed with fulvous.

*Color.*—The color above is slightly more yellow than that of *Tragulus kanchil* but not as bright as in *T. natunae*. Ground color orange buff, slightly paler on sides, and everywhere clouded with black, though less than in the Sumatran animal. Neck and outer surface of limbs tawny-

ochraceous a little grizzled by blackish hair tips. Upper surface of tail ochraceous-rufous washed with dark brown. Nape band broad and distinct but not sharply defined at sides, black with a few yellowish specks. Crown dark brown, faintly grizzled. Throat markings normal, slightly darker than in *Tragulus kanchil.* Underparts strongly washed with orange-buff along median line, this wash usually spreading toward sides and often separating white of chest from that of inguinal region. While there is some variation in this character the suffusion is always more extensive than in the Sumatran animal, so that when series are compared the difference is very noticeable.

*Skull and teeth.*—The skull and teeth do not differ from those of *Tragulus kanchil.*

*Measurements.*—External measurements of type: total length, 540; head and body, 470; tail vertebræ, 70; hind foot, 125 (113); ear from meatus, 32; ear from crown, 28. Measurements of an adult male from the type locality: total length, 528; head and body, 450; tail vertebræ, 78; hind foot, 120 (108.5). Skull of type: greatest length, 97; basal length, 90; zygomatic breadth, 42.6; diastema, 10.8.

*Weight.*—Type, 2.27 kg. Adult male from type locality, 1.8 kg.

*Specimens examined.*—Nineteen: five from Sinkep Island and fourteen (three in alcohol) from Linga Island.

*Remarks.*—In a certain degree this species is intermediate between the dull, dark, *Tragulus kanchil* of Sumatra, and the very bright *T. natunæ.* It is readily distinguishable from both of the related species.

### **Tragulus rubeus,** sp. nov.

*Type.*—Adult female (skin and skull) No. 115,522 United States National Museum. Collected on Pulo Bintang, Rhio Archipelago, August 20, 1902, by Dr. W. L. Abbott. Original number, 1914.

*Characters.*—Similar to *Tragulus subrufus* but with slightly larger skull and teeth and brighter colors.

*Color.*—Upperparts deep ochraceous-rufus, fading to tawny-ochraceous on sides and brightening to tawny on neck and outer surface of limbs. The back and sides are heavily clouded with black, about as in *Tragulus kanchil.* Underparts as in *T. subrufus* except that the fulvous is everywhere brighter and more red, very nearly approaching the ochraceous-rufous of Ridgway.

*Skull and teeth.*—The skull and teeth resemble those of *Tragulus subrufus* except that both average slightly larger.

*Measurements.*—External measurements of type: total length, 543; head and body, 478; tail vertebræ, 65; hind foot, 125 (113); ear from meatus, 36; ear from crown, 32. Two adult males from the type locality (Nos. 115,519 and 115, 521) measure respectively: total length, 545 and 522; head and body, 465 and 457; tail vertebræ, 75 and 65; hind foot, 120 (108) and 118 (106). Skull of type: greatest length, 99; basal length, 91; zygomatic breadth, 41.

*Weight.*—Type, 2.4 kg. Adult male (No. 115,519) 1.8 kg.

*Specimens examined.*—Five, all from the type locality.

*Remarks.*—This species differs from all other known members of the *kanchil* group in its dark, rich color and broad but inconspicuous nape stripe. Its characters are in every way parallel with those of the napu of the same island.

### Tragulus ravulus, sp. nov.

1900. *Tragulus javanicus* Miller, Proc. Biol. Soc. Washington, XIII, p. 192. December 21, 1900. Part, specimens from Pulo Adang. Not *Cervus javanicus* Osbeck.

*Type.*—Adult female (skin and skull), No. 104,717, United States National Museum. Collected on Pulo Adang, Butang Islands, December 16, 1899, by Dr. W. L. Abbott. Original number, 161.

*Characters.*—Similar to *Tragulus ravus* of Trong, Lower Siam, but smaller, the neck paler, and the nape stripe more ill defined.

*Color.*—The color so closely resembles that of *Tragulus ravus** as to need no detailed description. The back and sides are light ochraceous-buff clouded with black, the two colors almost equally mixed, though the black is a little in excess on back. Throat markings and underparts as in *T. ravus*. Neck a lighter shade of ochraceous than in the mainland animal, and nape stripe ill contrasted with surrounding parts.

*Skull and teeth.*—The skull is not distinguishable from that of *Tragulus ravus*, but the teeth, particularly the upper premolars, appear to be more robust. The material at hand, however, is not extensive enough to prove that this character is constant.

*Measurements.*—External measurements of type: total length, 525; head and body, 450; tail vertebræ, 75; hind foot, 113 (103); ear from meatus, 32; ear from crown, 27. Measurements of an adult male from the type locality: total length, 518; head and body, 455; tail vertebræ, 63; hind foot, 112 (102). Skull of type: greatest length, 96; basal length, 89; zygomatic breadth, 41.8; diastema, 11.

*Weight.*—Type 1.8 kg. Adult male, 1.6 kg.

*Specimens examined.*—Two, both from Pulo Adang.

*Remarks.*—Although closely related to *Tragulus ravus* the kanchil of Pulo Adang appears to be sufficiently distinct to need recognition by name, though relative unfamiliarity with the group led me in 1900 to place it with the mainland form.

### Tragulus lancavensis, sp. nov.

1900. *Tragulus javanicus* Miller, Proc. Biol. Soc. Washington, XIII, p. 192. December 21, 1900. Part, specimens from Pulo Lankawi. Not *Cervus javanicus* Osbeck.

*See Proc. Biol. Soc. Washington, XV, p. 173. August 6, 1902.

*Type.*—Adult female (skin and skull), No. 104,412 United States National Museum. Collected on Pulo Lankawi, off west coast of Malay Peninsula (about 75 miles north of Penang), December 7, 1899, by Dr. W. L. Abbott. Original number, 132.

*Characters.*—Similar to *Tragulus ravus* but general color slightly more yellow and underparts extensively washed with orange-buff.

*Color.*—The color is very similar to that of *Tragulus ravus*, but the ochraceous-buff of the upperparts is noticeably brighter and more yellow, particularly that of back and sides. Chest and anterior half of belly strongly washed with dull orange-buff along median line, this suffusion tending to spread at sides so as to separate white of inguinal region from that of front part of chest. While this character is not wholly constant, it is sufficiently prevalent to impart a very different aspect to series of specimens of the two species.

*Skull and teeth.*—The skull and teeth do not differ appreciably from those of *Tragulus ravus*, though they probably average somewhat larger.

*Measurements.*—External measurements of type: total length, 520; head and body, 455; tail vertebræ, 65; hind foot, 117 (105); ear from meatus, 34; ear from crown, 29. Average of six adult females from the type locality: total length, 521 (505-545); head and body, 456 (435-480); tail vertebræ, 65 (65-65); hind foot, 118 (115-119); hind foot without hoofs, 105.5 (102-107). Skull of type: greatest length, 99; basal length, 94; zygomatic breadth, 42; diastema, 12.

*Specimens examined.*—Thirteen, all from Pulo Lankawi.

*Remarks.*—The more extensive material now at hand brings to light differences between this animal and the mainland from which passed unnoticed when I examined the island series in 1900. The yellowish suffusion on the underparts suggests that of the bright colored species from Sinkep, Linga, and the Rhio Archipelago, but is much less intense.

### **Tragulus lampensis** sp. nov.

*Type.*—Adult female (skin and skull) No. 104,429, United States National Museum. Collected on Pulo Lampee or Sullivans Island, Mergui Archipelago, February 4, 1900, by Dr. W. L. Abbott. Original number, 299.

*Characters.*—Similar to *Tragulus lankavensis*, but yellower throughout, particularly on underparts.

*Color.*—The color is in general like that of *Tragulus ravus* and *T. lancavensis*, but is more strongly yellow than in either. The wash on the underparts is of the same extent as in *T. lancavensis*, but is a bright orange-buff.

*Skull and teeth.*—I cannot see that the skull and teeth differ from those of the related species.

*Measurements.*—External measurements of type: total length, 515; head and body, 460; tail vertebræ, 55; hind foot, 118 (108); ear from meatus, 33; ear from crown, 27. Two other adult females (Nos. 104,430 and 104,431) measure respectively: total length, 500 and 540; head and body, 435 and 470; tail vertebræ, 65 and 70; hind foot, 113 (104) and 118 (108). Skull of type: greatest length, 97; basal length, 91; zygomatic breadth, 42; diastema, 10.

*Specimens examined.*—Three, all from Sullivans Island.

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PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# THREE NEW PLANTS FROM NEW MEXICO.

BY AVEN NELSON AND T. D. A. COCKERELL.

The material on which this paper is based has already been described in a general way in the preceding article. It was collected by Mr. and Mrs. Cockerell and has been studied conjointly by Professor Nelson and Mr. Cockerell.

**Humulus Lupulus neomexicanus,** n. var.

Leaves divided or sometimes parted, the segments varying from broadly lanceolate to nearly linear, acuminate, freely sprinkled with resin particles on the lower face; fruiting bracts ovate-lanceolate, usually acuminate, finely pubescent.

The hop indigenous in New Mexico seems to possess these characters in variance with the usual and more widely distributed form and may probably best stand as a variety. The type of the variety is No. 14, T. D. A. Cockerell, Beulah, N. M. (Canadian Zone) August, 1902. It is also abundant on the Vallé Ranch, Pecos, N. M., and was collected by Professor Wooton in the White Mountains of that State (No. 294).

**Polemonium pterospermum,** n. sp.

Low, 1–2 dm. high, glabrate below, glandular-puberulent above and in the inflorescence; stems several, spreading or decumbent at base, terete but for a few acute longitudinal ridges, very leafy, especially

above; leaves broadly oblong in outline, 4–6 cm. long; the segments oblong, acute, 8–12 mm. long; the lower distinct and subpetiolate, the terminal crowded and slightly confluent; the petiole short or in the uppermost leaves wanting; flowers terminal or from the uppermost axils, in congested corymbs; calyx-lobes about equaling the campanulate tube; corolla purple, campanulate, 10–12 mm. long, quite as broad, the tube short, its lobes broadly ovate, moderately obtuse; filaments narrowly margined, shorter than the corolla, somewhat incurved, glabrous but involved in dense fine pubescence at the insertion; style filiform; the stigmas narrowly linear, exserted; ovules few, apparently only 2 or 3 maturing; the seeds narrowly wing-margined and subconcave ventrally.

This species has for its nearest allies *P. filicinum* Greene and *P. Archibaldae* A. Nelson, but it is a much smaller plant than either, with larger corolla and very different seeds. Collected at Cloudcroft, Sacramento Mountains (Canadian Zone), N. M., by T. D. A. Cockerell, September, 1900. Type in Rocky Mountain Herbarium.

**Mertensia caelestina,** n. sp.

Low and leafy, 5–15 cm. high, perfectly glabrous except for the ciliate-scabrous edges of the leaves and the calyx-lobes; leaves 2–3 cm. long, elliptic-oblong, tapering to both ends, subacute, the basal short-petioled; flowers congested in terminal clusters; pedicels short, slender; calyx cleft nearly to the base; calyx-lobes linear, subacute, about 5 mm. long; corolla dark-blue about 12 mm. long, tube a little longer than the calyx and the limb, the lobes broadly or truncately obtuse, the pubescence of the ring at the base coarse and conspicuous, appendages of the throat yellow; filaments dilated, as broad as or broader than the anther.

Collected by Mrs. Wilmatte P. Cockerell, No. 40, Truchas Peaks, N. M., above timber line (Arctic-Alpine Zone), 1902. Type in Cockerell Herbarium.

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OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# TWO NEW WOOD RATS (*GENUS NEOTOMA*) FROM STATE OF COAHUILA, MEXICO.

BY C. HART MERRIAM.

Among the mammals collected by E. W. Nelson and E. A. Goldman in Coahuila, Mexico, in the spring of 1902, are two new species of *Neotoma*, which may be characterized as follows.

**Neotoma navus,** sp. nov.

*Type* from Sierra Guadalupe, Coahuila, Mexico. No. 116,895, ♀ ad., U. S. National Museum, Biological Survey Collection. April 26, 1902. E. W. Nelson and E. A. Goldman. Original No. 15,130.

*Characters.*—Size medium; tail rather long; ears medium. Similar to *N. mexicana* but tail decidedly longer; frontals expanded posteriorly unlike the previously known members of the *mexicana* group; anterior lobe of first upper molar cut in two by deep notch on inner side, as in *mexicana*.

*Color.*—Ground color of upperparts buffy ochraceous, moderately, evenly, and rather inconspicuously lined with black hairs; sides of face buffy ochraceous, the color reaching forward to nose (not stopping under eye as in *mexicana*); fore feet from wrists and hind feet from ankles white; head grayish; tail sharply bicolor, narrowly dusky above, broadly white below; underparts white, the plumbeous underfur showing through posteriorly; axillæ salmon.

*Cranial characters.*—Skull and teeth rather slender, about as in *N. mexicana*, which appears to be its nearest relative; bullæ small; premaxillæ exceeding nasals. The skull differs from that of *mexicana* in

having the frontals expanded posteriorly, forming supraorbital shelves; anterior root of zygoma more slender, with smaller antorbital notches; bullæ decidedly smaller and less inflated anteriorly.

*Measurements.*—Type (♀): Total length, 350; tail vertebræ, 164; hind foot, 34. Adult male from same place: total length, 330; tail vertebræ, 152; hind foot, 36.

*Skull of type.*—Basal length, 37; zygomatic breadth, 21.5; palatal length, 21.5; diastema, 12; upper molar series on alveolus, 8.5.

### **Neotoma goldmani,** sp nov.

*Type* from Saltillo, Coahuila, Mexico. No. 116,894, ♂ yg. ad., U. S. National Museum, Biological Survey Collection. April 18, 1902. E. W. Nelson and E. A. Goldman. Original No. 15,101.

*Characters.*—Size small; tail rather short, sharply bicolor; ears rather large; color grayish, becoming buffy ochraceous on flanks. Skull small, similar in general to that of *desertorum* but much smaller, with strikingly smaller bullæ; anterior lobe of first upper molar single and without anterior notch.

*Color.*—Upperparts buffy grayish, becoming buffy ochraceous on flanks; back well sprinkled with black tipped hairs, most abundant on posterior half; head and face gray, washed with buffy ochraceous on cheeks; underparts and feet white; tail above dark brown (nearly black in fresh pelage); below white or nearly white.

*Cranial characters.*—Skull small, light, and smoothly rounded, even in old age; frontals flat interorbitally, broad anteriorly and not expanded posteriorly (much as in *mexicana* but relatively broader and flatter); nasals narrowly wedgeshape, truncate behind; premaxillæ reaching far beyond nasals and somewhat expanded posteriorly; interparietal subtriangular, long transversely, strongly convex anteriorly.

*Remarks.*—*Neotoma goldmani* is a very small species with a peculiar combination of cranial and dental characters. It does not require close comparison with any known species.

*Measurements.*—Average of four from type locality: total length, 279; tail vertebræ, 128; hind foot, 30.

*Skull* of an adult male from type locality: basal length, 33; zygomatic breadth, 19; palatal length, 18.2; diastema, 11; interorbital breadth, 5.5; upper molar series, 7.

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PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# GENERAL NOTES.

## Three fishes new to the fauna of New Mexico.

When in the Pecos Valley last August, I obtained three species of small fishes, which have been very kindly identified by Dr. B. W. Evermann, and appear to be new to the fauna of our Territory.

*Etheostoma lepidum* (Baird and Girard). Dimmit Lake, near Roswell. The lake is small but very deep, at the base of the gypsum bluffs which skirt the Rio Pecos.

*Notropis macrostomus* Girard, and

*Tetragonopterus argentatus* Baird and Girard, both from North Spring River, just north of Roswell.—*T. D. A. Cockerell.*

## Note on Phoca nigra Pallas.

In a recent paper on 'The Hair Seals (Family *Phocidæ*) of the North Pacific Ocean and Bering Sea' (Bull. Am. Mus. Nat. Hist., XVI, 1902, pp. 459-499), I suggested (*l. c.*, p. 483, foot note) that as Pallas's name *Phoca nigra* (1811), based on a young fur seal from the Kurile Islands, has priority over *Callorhinus curilensis* Jordan and Clark (1899), the Kurile Islands species would have to stand as *Callotaria nigra* (Pallas). I overlooked the fact, however, that *Phoca nigra* Pallas is preoccupied by *Phoca grœnlandica* var. *nigra* Kerr (1792). Consequently the Kurile Fur Seal will stand as *Callotaria curilensis* (Jordan and Clark).—*J. A. Allen.*

### A new name for Mus atratus Miller.

The name *Mus atratus* which I recently applied to a rat from the Nicobar Islands (Proc. U. S. National Museum, XXIV, p. 767, May 28, 1902) is preoccupied by *Mus atratus* Philippi (Annales del Museo Nacional de Chile, Entrega 14, p. 57, 1900). It may therefore be replaced by *Mus atridorsum.—Gerrit S. Miller, Jr.*

### A new name (Hoplias) for the genus Macrodon of Müller.

The name *Macrodon* was given by Johannes Müller in 1842 for a well-known genus of *Erythrinoid* or *Characinoid* fishes. Although universally adopted since that time, it must be abandoned for the genus in question, inasmuch as it had been given as early as 1822 by Schinz, as a substitute for *Ancylodon* of Cuvier (1817), another preoccupied name (1811). The new designation *Hoplias* is proposed instead, and *Hoplias tarcira* (*Macrodon trahira* Müller) or *malabaricus* is the type.—*Theo. Gill.*

### The technical name of the Indian Flying Fox.

*Pteropus medius*, the current name for the flying fox of India, is not tenable. It dates from 1827, the year in which Temminck issued the first volume of his 'Monographies de Mammalogie' (the name is proposed on page 176), and, although earlier than Hodgson's *Pteropus leucocephalus* and McClelland's *Pteropus assamensis*, assuming that all three refer to the same animal, is itself antedated by the *Vespertilio gigantea* of Brünnich. This name was published at Copenhagen in 1782, on page 45 of a little-known book, a small quarto volume containing seventy-six pages and seven plates, entitled: "Dyrens Historie og Dyre-Samlingen udi Universitetets Natur-Theater. Förste Bind."* Although the bat is not among the species figured the description is detailed and accurate. The fact that the account was based on a stuffed specimen from Bengal, while Temminck's animal was collected at Calcutta, removes the last element of doubt as to the equivalence of the names. The common flying fox of India must therefore be known as *Pteropus giganteus.—Gerrit S. Miller, Jr.*

*This work, of which only the first volume appears to have been published, was brought to my attention by Dr. Leonhard Stejneger. The new names that it contains are not mentioned by Fischer, Dobson, or Trouessart, but are all cited by Sherborn.

## A note on the Florida Phœbe.

Through the kindness of Mr. Outram Bangs of Boston, and Mr. C. J. Maynard of West Newton, and through information received, *in litteris*, from Mr. William Palmer of Washington I am able to adjust so far as it is possible, with all the data that there is any prospect of obtaining, the relationships of the Florida Phœbe mentioned in "Notes on Various Florida Birds" (Contr. N. Amer. Ornith., Vol. I., May 21, 1902, p. 30).

In February, 1846, John Gundlach observed near Cardenas, Cuba, a pair of Phœbes, probably, though he does not state so, shooting both birds, as in his description he mentions peculiarities of both sexes. In 1850, Juan Lembeye, in his "Aves de la Isla de Cuba" (p. 41), included the species *Muscicapa fusca* Gmel., describing carefully both plumage and habits, evidently from the notes of Gundlach made in 1846 (see 'Prologo,' p. 6), and from a specimen No. 169 in the "Col. of Gundl." Later in 1852, Gundlach, in the Boston Journal of Natural History (Vol. VI, p. 314), described, evidently from the same specimen or specimens, an insular race, *Muscicapa lembeyei*, giving as careful description and measurements as did Lembeye himself.

It is evident therefore that Lembeye and Gundlach knew of only one pair of Phœbes to have visited Cuba, and although that island has had little extended ornithological investigation yet, recent collectors have failed to record the species. Mr. Palmer writes me that on his late visit to Cuba he saw a specimen of the Phœbe in the Gundlach museum [probably the same No. 169] but that the "Gundlach cases were so made that it was impossible to get at the birds."

To recapitulate: It is evident from Lembeye's and Gundlach's descriptions that the specimen or specimens they had were either stragglers from Florida or that the bird is a rare resident of Cuba, and for the resident southern Florida Phœbe there is no alternative but to use Gundlach's name, provided it is thought the form deserves to be recognized at all.

When I first examined Mr. Maynard's series of specimens from Enterprise, which show the brownish cast of plumage so often characteristic of the peninsular birds, I thought the race one decidedly worth recognizing, but a further examination of specimens from Miami and elsewhere proves that this coloring is not constant, and careful measurements also show that the greater size of the Florida bird does not always hold true.

It may be well to mention now while the subject is under discussion, that the type of Gundlach's *lembeyei* is without much doubt No. 169 in the Gundlach museum in Cuba, an example probably taken at Cardenas in February, 1846.—*Reginald Heber Howe, Jr.*

### A new subgenus for Nyctaginia Cockerellae.

By the characters mentioned, *Nyctaginia Cockerellae* A. Nelson (Proc. Biol. Soc., Washington, XVI, p. 29), seemed to me to differ generically, but I am willing to follow Professor Nelson's decision to the contrary. *N. Cockerellae* forms, however, at least a distinct subgenus or section, which may be called *Roswellia.*—*T. D. A. Cockerell.*

### On the name of the common American Eel

The name of the common American eel is now generally conceded to be *Anguilla chrysypa* Rafinesque, and the reference is given as "The American Monthly Magazine and Critical Review, Vol. II, p. 120 (Dec., 1817)," the article in which it is contained being entitled "First Decade of New North American Fishes, by C. S. Rafinesque."

Messrs. Jordan and Evermann, in the "Fishes of North and Middle America" (Bulletin 47, U. S. Nat. Mus. Vol. I, p. 348, 1896), give the derivation as from χρυσός, gold, and ὑπό, below. But on referring to the original article, we find that Rafinesque spells the word "*chrisypa*," the derivation for the word in this form being χρῖσις (from χρίω) meaning an anointing, a besmearing, and ὑπό, below. In his account of the eel, he gives the vernacular names, referring to it as "Gold-Eel, Silver-Eel, Lake-Eel, Gold-Breast, etc." It is from this last mentioned name that the confusion doubtless arose.

Although there is no way of ascertaining which of these derivations is correct, whether Rafinesque really meant to turn the name "Gold-Breast" into Greek and made a slip, or whether he intended to refer to the slimy character of the fish, it seems best to retain the original spelling as given by him, as it is just as plausible as that adopted, and we are not now in a position to make really certain which idea he entertained, as all that he has left us is the name *chrisypa*.

As regards the name *bostoniensis* of Le Sueur, on looking up the reference (Jour. Phil. Acad. I, p. 81) we find that it was given in a paper entitled "A short description of five (supposed) new species of the genus Murœna discovered by Mr. Le Sueur in the year 1816," which was read before the society on August 19th, 1817. As Rafinesque's name is dated in his article December, 1817, *bostoniensis* would seem to have priority over *chrisypa*. But we find that Le Sueur's name was not published until 1821, whereas Rafinesque's appeared in 1817.

Therefore, the name of the common American eel should stand as *Anguilla chrisypa*, Rafinesque.—*Austin H. Clark.*

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# A NEW REITHRODONTOMYS FROM WESTERN NEBRASKA.

BY MERRITT CARY.

Among some mammals collected by me in the Sand Hill region of Nebraska, in the spring and fall of 1901, is a well marked species of *Reithrodontomys* which has hitherto remained undescribed. It may be known from the following description:

**Reithrodontomys albescens** sp. nov.

*Type* from 18 miles northwest of Kennedy, Nebraska, ♂ adult, No. 116,358, United States National Museum, Biological Survey Collection. Collected October 31, 1901, by Merritt Cary. Original number 411.

*General characters.*—Size small; tail short (ratio of length of tail to total length 45); colors extremely pale; pelage long, full and soft; ears small, with two distinct black spots.

*Color.*—Sides pale buffy gray; dorsum darker and plain gray, or with a tinge of buff; lateral line, between the pinkish buff and cream buff of Ridgway, continuous from cheeks to thighs; sides of nose, lower portion of cheeks, throat, forelegs and rest of underparts pure white; tail well haired, sharply bicolor, the dark line on upper surface narrow; upper surfaces of feet white.

*Cranial characters.*—Compared with *nebracensis* from the same type locality the skull is much smaller (averaging 1.62 mm. shorter, and 8 mm. narrower across mastoids, in a series of 5 adults), with relatively shorter rostrum and narrower interparietal; nasals less deeply concave above.

*Measurements.* — Three adult specimens from type locality average: total length, 125; tail vertebrae, 53.5; hind foot, 16.6. Type: Total length, 124; tail vertebrae, 54; hind foot, 16.5. Skull of type: Basal length, 15.7; occipito-nasal length, 19.7; nasals, 17.4; zygomatic breadth, 10.5; mastoid breadth, 9.

*Specimens examined.*—Total number 18, from the following localities: Nebraska: Neligh 11, Kennedy 5, Cody 1. South Dakota: Belle Fourche River (15 miles from mouth) 1.

*Distribution.*—Sand hill region of central and western Nebraska, and western South Dakota. Limits of range unknown.

*Habits.*—This species, so far as at present known, occurs only in sand hills, or on sandy land, where it appears to subsist to a large extent on seeds of various grasses. Near Kennedy, in October, I secured several specimens by overturning millet shocks in a sandy field. When uncovered the little fellows would scurry to their nest for refuge.

The nests were compact little balls of fine grass, and were either on or just beneath the surface of the ground under the shock. A small opening on one side led into a little cavity in the interior, in which was a store of millet seeds.

At both Kennedy and Neligh, in sand bur and weed patches in the sand hills *albescens* and *nebracensis* were about equally abundant, but traps set in meadows or marshy tracts secured only *nebracensis*.

*Remarks.*—This handsome little species requires no close comparison with any described *Reithrodontomys*.

From *nebracensis* it differs in much smaller size and paler coloration, entirely lacking the strong fulvous suffusion. The ears are relatively much shorter, and the rusty hairs at their bases are scarcely noticeable, or entirely wanting. The tail is much more sharply bicolor and the black stripe is confined to the upper fourth.

One October specimen from Kennedy, and two November specimens from Neligh, are pale ashy gray, with no trace of the buff. Whether or not this is the normal winter pelage is yet to be determined.

A June specimen from Belle Fourche River, South Dakota, considered by Allen (Bull. Am. Mus. Nat. Hist., N. Y. VII, p. 123, 1895.) a pale specimen of *nebracensis*, seems to be referable to *albescens*.

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# A NEW GENUS AND SPECIES OF DRAGONFLY FROM BRAZIL.

BY JAMES G. NEEDHAM.

Having used a figure of the wings of this species in a paper soon to be issued in the Proceedings of the U. S. National Museum, I herewith make public the full description of both genus and species.

**Cyanocharis** gen. nov.

Allied to *Heliocharis:* Fam. *Calopterygidae* of *Odonata.* Nodus midway between base and apex of wing. Two hypertrophied antenodal crossveins, the straight arculus situated just beyond the first of these. Extra half antenodal crossveins in the basal subcostal space, but no crossveins traversing the space before the arculus. Quadrangle divided by a single crossvein. Subquadrangle open, longer than the quadrangle, but hardly more than half as wide. Anal margin coincident with the anal vein almost as far as the subquadrangle. Vein $M_{1-2}$ separating from vein $M_3$ just beyond the quadrangle by a stalk so transverse it appears as a crossvein, and then fused in one or two places with vein R. Vein $M_2$ separating from vein $M_1$ a space beyond the subnodus. Stigma large, very oblique at its proximal end. A single long interpolated sector between veins $M_1$ and $M_2$. The radial sector stronger than adjacent veins and slightly bent forward beyond the nodus. Vein $Cu_2$ forked with two rows of cells included in the fork. Legs very long and slender, with numerous exceedingly short spines, the femora arcuate. Claws minutely bifid at extreme apex. Superior abdominal appendages of the male simple, curved; the inferiors rudimentary.

Type, *Cyanocharis valga* sp. nov.

This genus is intermediate in a number of characters between *Heliocharis* and *Dicterias* of the same region, but seems allied to the former by more important characters. It differs, however, from *Heliocharis* in the separation of vein $M_{1-2}$ from vein $M_3$ close beyond the quadrangle, and in its subsequent fusion with the radius, and in the condition of its antenodal crossveins.

It differs utterly from *Dicterias* in the arrangement of its interpolated sectors, in the remoteness of the nodus from the base of the wing, in the form and position of the posterior branch of the cubitul vein, and in type of coloration.

### **Cyanocharis valga** sp. nov.

Length, 62 mm; abdomen, 44 mm; hind wing, 35 mm.

Colors greenish-blue and black. Head blackish, with the labrum, the post-clypeus, and the occiput behind the eyes greenish. Antennae black, the second joint twice as long as the first and but half as thick, the remaining five joints together but little longer than the second, each of them a little shorter than the one before it. Mouth strongly projecting, the squarely cut post-clypeus being horizontal, the ante-clypeus vertical and the labrum sloping. Median ocellus large, lying in a wide longitudinal furrow; lateral ocelli smaller, each confined to the outer aspect of a conical vertical spine. A [-shaped sulcus behind the ocelli sharply defines the occipital crest, which is thinly fringed with tawny hairs.

Prothorax blackish, fenestrate with green, three greenish patches on either side, a twin spot of paler green upon the middle, and a broad greenish crescent lying transversely upon the rather prominently elevated, black bordered posterior lobe. Thorax with blackish carinae. Ground color greenish blue (turquoise blue), with narrow stripes of brown on all the sutures, the middorsal one divided by the black of the carina. There is also a well developed, isolated, antehumeral stripe of brown.

Legs excessively long and slender, appearing bare by reason of the minuteness of their numerous spines. Hind and middle femora slightly, and fore femora and tibiae strongly curved. Claws with a very minute tooth so near the tip that it appears bifid, hardly distinguishable in the front tarsus. Wings hyaline, slightly tinged with brown at the extreme tip: stigma brown. Antenodal crossveins 18 in the fore wing and 15 in the hind wing, with 4-5 half antenodals additional in the basal subcostal space: 17 and 14 postnodals in the fore and hind wing respectively. Stigma long, covering 5-6 cells, and reaching nearly to the wing apex, there being but three minute crossveins in the space beyond it. Between veins $M_1$ and $M_2$ are five interpolated sectors, only the middle one being of more than a few cells length: between Rs and $M_3$ are four sectors, the third longest: there are two sectors between $M_2$ and Rs, two between $M_4$ and $Cu_1$, and two behind $Cu_2$, the second of these appearing as

a branch: there is a single row of cells, except at the extreme margin between $M_3$ and $M_4$, and between $Cu_1$ and $Cu_2$. The fusion of veins $M_{1-2}$ with the radius occurs just before the second hypertrophied antenodal crossvein.

Abdomen cylindric, greenish blue dorsally, with dagger-shaped mark of black upon the dorsum of each segment, the color and markings becoming obscured apically in the type specimen (perhaps from fading). Segments 3-7 of equal length: segments 8, 9 and 10 each successively one-third shorter than the preceding segment. Superior appendages a little longer than the 10th segment, simple, depressed beyond the base, a little arcuate with the tips slightly convergent, rounded without, but with a fine longitudinal carina within, and armed with minute prickles dorsally and toward apex: color black, with the extreme apex yellow. Inferior appendages rudimentary.

Poco Grande, Brazil, January 13, 1898, Mr. Adolph Hempel, collector.

The type is in the Cornell University Collection.

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PROCEEDINGS

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# A NEW SPECIES OF FLYING LIZARD FROM SARAWAK, BORNEO.

BY THOMAS BARBOUR.

The following species which does not appear to have been previously characterized is one found among a considerable number of Reptiles and Batrachians collected in Borneo.

**Draco gracilis,** sp. nov.

This species approaches *Draco cornutus* in its general proportions; but it differs from the latter in coloration, squamation, and number of labials.

*Description.*—Habit slender. Head moderate; length of snout about equal to orbital diameter. Nostril lateral, directed outward. The hind limb pressed forward reaches the fore limb pressed backward at a point about half-way between wrist and elbow. Tympanum naked, with scales encroaching somewhat from the margins: smaller than eye opening. A prominent tubercle on the posterior part of the supraciliary region. A rather small nuchal crest, consisting of a single row of triangular scales. Crown scales, dorsals, and ventrals keeled. The nuchals and scales on temple are very slightly or not at all carinate. There is a row of triangular spinelike scales along each side of the body, just at the base of the wing membrane. The gular pouch is longer than head, and of the thirteen upper labials the last is the largest.

*Color* (alcoholic specimen). Dorsal surfaces light greyish brown. Ventral regions light gray. Neck and throat specked with rather dark brown. Forehead dark brown. A number of blackish spots at the base

of the gular pouch. Upper surfaces of the wing membranes dark orange with irregular black bands; under surfaces whitish, barred with rich brown or black. On the upper surfaces of the body the metallic lustre is decidedly noticeable on the spots in front of the shoulders and along the ribs on the wing membranes. The bases of the latter are very thickly spotted with metallic specks, each covering a single scale. There is a strong light yellowish serration along the inner surfaces of the femur and tibia; this is formed by a single series of enlarged, flat, triangular scales.

Another specimen verifies all the specific characters shown by the type; but this second example shows the femur-tibia fringe to an even greater extent. It is also lighter in color on the forehead. The specimens were collected in Sarawak, Borneo, by W. T. Hornaday, Esq., Director of the New York Zoological Park.

*Type* 6713, (adult ♂); of the Reptilian Collection in the Museum of Comparative Zoology.

*Measurements:*—Length of head, 15 mm.; width of head, 9 mm.; length of body, 57 mm.; length of forelimb, 27 mm.; length of hind limb, 30 mm.; length of tail, 109 mm. Total length, 177 mm.

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PROCEEDINGS

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# TWO NEW SPECIES OF CHAMAELEON.

BY THOMAS BARBOUR.

An examination of the large collection of Chamaeleons in the Museum at Cambridge, Mass. discloses two species apparently hitherto undescribed. Remarks on their characters follow.

### **Chamaeleo angusticoronatus** n. sp.

Near *Chamaello dilepis*, but differing in the peculiar narrowness of the casque, the squamation of the body and the prominence of the dorsal tubercular crest.

*Specific characters.*—Casque well raised posteriorly; the lateral crests decidedly marked from their origin on the snout to a point about halfway from the eye to the extremity of the casque: at this position they quickly become indistinct and disappear. Above the casque narrows suddenly to a very acute point, beginning to show the compression just where the lateral crests vanish. The surface of the body is very finely granular, and the dorsal crest is hardly noticeable except for a short distance directly behind the casque. The tail is slightly longer than the head and body.

*Type.*—An adult female from Zanzibar, No. 6712, of the Reptilian Collection in the Museum of Comparative Zoology.

*Measurements.*—Total length, 226 mm.; length of mandible, 24 mm.; tip of snout to extremity of casque, 33 mm.; greatest width between lateral cranial crest, 13 mm.; width of head, 18 mm.; depth of skull, including mandible, 27 mm.; length of head and body, 110 mm.; length of tibia, 21 mm.; length of tail, 116 mm.

**Chamaeleo macrorhinus** sp. nov.

*Specific characters.*—Casque not elevated posteriorly. A single large dermal fold, unnotched and undivided on the median line, borders the casque from shoulder to shoulder. There is neither a lateral nor a parietal crest on the casque, nor dorsal, ventral nor gular crest on the head and body. The whole surface of the body is covered with rather small, subequal, polygonal, granular tubercles. On the snout there is a large oblong dermal process covered with round granules. At a little more than half way between the eye and the dermal process there is, on each side, an excrescence composed of a number of elongated tubercles partially fused. The tail is of about the same length as the head and body.

*Type.*—An apparently adult female from Madagascar, No. 5988, of the Reptilian Collection in the Museum of Comparative Zoology.

*Measurements.*—Total length, 85 mm.; length of mandible, 11 mm.; tip of snout to extremity of casque, 16 mm.; greatest width between lateral cranial crests, 6 mm.; width of head, 9 mm.; depth of skull, including mandible, 12 mm.; length of head and body, 43; length of tibia, 8 mm.; length of tail, 42 mm.

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PROCEEDINGS

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# MAMMALS OF MT. KATAHDIN, MAINE.

BY B. H. DUTCHER.

In the summer of 1902, I spent from July 10 to September 5 in an attempt to determine the mammalian fauna, and in general the faunal zones of Mt. Katahdin in north central Maine. This mountain was chosen because, as far as I know, no mammal work had ever been done in its vicinity, and because of its height and isolated position.

The old idea of Katahdin, printed even in geographies, was that of an extinct volcano, an assumption very excusable in those whose views of the mountain were from a distance, for the "basins" or heads of the old glacial valleys on the eastern side, with their wide encircling walls on the north and south, give the appearance of a great crater blown out on one side. A closer examination reveals the fact that the mountain is in reality a granite ridge of very irregular outline with its major axis lying north and south, flanked by precipitous buttresses, the glacial retaining walls, that project out to the east, west, and north, and drop rapidly away in slopes of high degree on face and point. On the east, north, and west are a number of smaller ridges, timber covered, nestling under the shelter of the greater mountain, and separated from it by valleys and basins. These minor ridges, Hunter Mountain, Traveler Mountain and the

Four Brothers, vary from about 2000 feet to 3000 feet in height. Katahdin itself reaches 5200 feet.

The top of this great ridge is an undulating plateau, shaped in a very general way like an hour-glass. Its lowest point, which is at the waist, is about 4200 feet, whence the surface slopes gradually upward to the north and south. The highest elevation is reached in the south peak, 5200 feet. The two northern peaks, merely somewhat elevated points in the general surface, reach to about 4700 feet. The plateau surface measures probably four miles from north to south, and a mile in width at the north and south expansions. The ground is rock strewn and grassy, with an extensive area of fir scrub—krummholz—near the constriction, and on the northwestern promontory. From the plateau edges, the mountain falls rapidly away. On the east, the north and south spurs, with precipitous rock walls, enclose two great basins—the "north" and the "great"—separated by a long sloping ridge that comes down from the saddle. The more southern of these two basins is itself imperfectly divided into the "south" and the "middle" basins by another and smaller spur. The head of the middle basin is inclined sufficiently to support vegetation, and by a slide at its head affords easy access to the saddle by the old Appalachian Trail. The only other trails to the top are the Abol Trail up the steep south wall of the southwest promontory, and an old unused trail up the crest of a long promontory that leads north and helps enclose a deep glacial basin on the north face of the mountain. The western slopes are somewhat less precipitous, and lead down to a wide flat valley, mountain-locked by Katahdin and its daughter hills on the west. The country surrounding the mountain is comparatively level, almost completely forested, and dotted with lakes, ponds, and sphagnum bogs. The only forest denudation has been by fire.

The floor of the great basin, in which I had one of my camps, slopes from about 3400 feet at its head to 2400 feet at its eastern edge. A small glacial lake, Chimney Pond, occupies part of the south basin. The floor of the north basin is about 3500 feet above sea level, is more extensive than either the south or middle basins, and has elevation enough to render it devoid of high timber. Its floor is in places free from tree growth, and in places along its lower edge, covered by scrub

firs. Its eastern edge is marked by a very small glacial pond in the moraine. The middle basin is covered to its head with a forest of balsams, which climb 100 feet above it, to 3500 feet in suitable localities.

The entire mountain is composed of white and pink granite. The plateau is covered with rough granitic masses that are being disintegrated by frost. This leveling action of the frost has in places evenly carpeted the surface with small granite flakes, varying from the size of the hand to three or four times as large.

The rainfall is so great on the mountain top that its entire surface is moist at all times, and there are at least four perennial seepage springs on the tableland. Two of these are in the fir scrub, which has been cleared for a short distance around them by the gathering of animals to drink in times gone by. The water does not flow out on the surface, but is found subterraneously in little depressions among moss-covered rocks. At one of these springs, at an altitude of 4500 feet, I camped for four nights, while attempting to secure specimens of the native microtine.

Trapping was done at various localities from the base camp, at the union of the Wissataquoick and East Branch Penobscot Rivers, at 450 feet, to the tableland, at 4500 feet.

The following 36 species of mammals are recorded from Mt. Katahdin.

**Rangifer caribou** (Gmel). Woodland Caribou.

The caribou is an animal of the past in the Katahdin region. Today all that remains is its bones in the porcupine dens. From accounts received, there have been two migrations of caribou from northern Maine, within the memory of inhabitants now living. The last of these occurred about six years ago.

Unfortunately the awakening of public sentiment in regard to the importance of game preservation did not take place while the animals were still abundant, and their absence now can in part at least be attributed to wanton destruction.

**Alces americanus** (Clinton). Moose.

The recent protective legislation has in the opinion of the natives, resulted in allowing a very considerable increase in the numbers of moose.

Judging by the sign observed, they are comparatively abundant on the base of, and near the mountain. They range up to timberline in favorable localities. Man is practically the moose's sole destructor, and if the killing in defiance of law that takes place to feed the lumber camps were prevented, there would be a still greater increase. It is very difficult to secure evidence against these malefactors. The lumber camps are so isolated that all the persons in them, and in their vicinity, are to a certain extent beneficiaries directly or indirectly, from the fresh meat secured, and are hence *particeps criminis*. The danger of detection in a camp of sixty men, where one animal can be entirely consumed in a short time, is very small, and evidence is not easily obtained.

**Odocoileus virginianus borealis** (Miller). Northern Virginia Deer.

Deer are really abundant in the Katahdin region. It was not unusual to see as many as five in the course of an afternoon's walk. They sometimes prove a nuisance by destroying unfenced gardens.

One was seen near Chimney Pond, at an altitude of about 3000 feet. They are not common at this altitude however. In spite of the illegal hunting that takes place they appear to be on the increase.

**Sciurus hudsonicus loquax** (Bangs). Southeastern Red Squirrel.

Red squirrels are abundant throughout the region, extending even to the treeless tableland of the mountain, where I saw one at close range, August 28. Another was seen by one of our cooks in the same locality.

At Chimney Pond camp, altitude 3000 feet, they were abundant.

Only four specimens were secured, though had I foreseen the difficulty of determining their proper designation with respect to the published subspecies of *Sciurus hudsonicus*, I would have taken a large series.

The measurements and colors of my specimens correspond with the description of *S. h. loquax*, described as the upper austral and transition race. But these animals were taken at 3000 feet elevation on the 46th parellel north, and almost within sight of the type locality of *S. h. gymnicus*, the boreal race of the same species, though 2000 feet above it.

A careful examination of the material in the Biological Survey Collection and in the American Museum of Natural History, leaves me totally unable to harmonize the descriptions of the two races with specimens from their respective faunal stations, or to appreciate constant differences as described in individuals from transition and boreal regions.

A comparison of dimensions shows nothing conclusive, and I am led to the belief that the differences on which these two forms are separated are not of sufficient degree or constancy to justify their separation. I propose therefore to call the Red Squirrel from the Katahdin region

*S. h. loquax*, as it most closely corresponds to this form in color and size, doubting very much whether the consideration of more material from the regions involved will not show that the two forms are in reality not entitled to separate names, and that *S. h. gymnicus* should be retired. I am the more inclined to this belief after reading Mr. Preble's description of typical *Sciurus hudsonicus*.*

**Tamias striatus lysteri** (Richardson). Northeastern Chipmunk.

Chipmunks were common on the hardwood ridges of the low ground, but I saw none at the higher elevations where the deciduous trees were not so abundant.

One specimen taken at 500 feet altitude is typical *lysteri*.

**Arctomys monax** (Linn.). Woodchuck.

Fairly common on the lowlands.

**Sciuropterus sabrinus macrotis** (Mearns). Canadian Flying Squirrel.

A living specimen was kept in the lower camp. These squirrels are common on the hard wood ridges. As usual however, unless trapping for fur, one does not secure them.

**Castor canadensis** (Kuhl). Beaver.

The beaver is now protected during all seasons in Maine. I heard of a few colonies, on rather poor authority, but the animal no doubt exists in secluded localities.

**Mus musculus** (Linn.). House Mouse.

Common in dwellings.

**Peromyscus canadensis** (Miller). Canadian White-footed Mouse.

Nine specimens were taken that correspond perfectly with specimens of typical *P. canadensis* in the Biological Survey Collection. They were secured from the lowest to the highest trapping grounds, one individual being taken under a rock on the tableland, but they are not abundant animals.

*North American Fauna No. 22, p. 45, 1902.

**Synaptomys cooperi** (Baird). Cooper Lemming Mouse.

Two species of the genus *Synaptomys*, representing both subgenera occur in the Katahdin region.

Of the subgenus *Synaptomys*, one specimen was taken August 3, in a small grassy clearing in the woods at an altitude of about 500 feet, that seems, on comparison with material in the Biological Survey Collection, to be intermediate between *S. cooperi* and *S. fatuus*, but which from its habitat I refer to the former.

**Synaptomys sphagnicola** (Preble). Preble Lemming Mouse.

Of the subgenus *Mictomys* two examples were taken, August 28, and August 30, respectively, under some balsam scrub by a spring on the table land, at an altitude of 4500 feet.

A thorough and painstaking search was made of the entire top of the mountain, and a line of nearly ninety traps was carefully set, baited, and tended, but the only microtines secured were these two lemmings. Strange to say the entire top of the mountain was covered with old sign, without doubt of this species.

**Fiber zibethicus** (Linn.). Muskrat.

Exceedingly abundant. While canoeing one day, I paddled up within a few feet of one asleep at the water's edge. While we were watching him he half opened his eyes, apparently looking directly at me, and leaning down lapped the water at his feet, then closed his eyes and relapsed into slumber. If his eyes had seen, his cerebrum had not interpreted, and he did not recognize his dangerous position. A slight noise sent him to the bottom like a flash.

**Microtus pennsylvanicus** (Ord.). Meadow Mouse.

Contrary to expectation the meadow mice were rather scarce. When I arrived on July 10, the meadow lands available for their homes were many inches under water, and a search of the higher land, revealed but few signs of any kind. A few were found along the rivers, one at 1500 feet, and one at Chimney Pond, at 3000 feet.

**Evotomys gapperi** (Vigors). Redbacked Mouse.

Fairly common in the higher woods, up to 3500 feet, and probably on the lower levels too, though none were caught there.

**Zapus hudsonius** (Zimmermann). Meadow Jumping Mouse.

Found in all suitable localities from 500 feet to 3000 feet altitude.

**Napæozapus insignis** (Miller). Woodland Jumping Mouse.

About as common as, and found in the same meadows with *Zapus*.

**Erethizon dorsatus** (Linn.). Canada Porcupine.

Very common from the river to the summit of Katahdin. Their dens in the fir scrub and rock heaps were filled with caribou bones, that were deeply chiseled by their incisors.

**Lepus americanus virginianus** (Harlan). Southern Varying Hare.

The varying hare occurs on the tableland, where I trapped one in an old caribou trail in July. It corresponds with specimens obtained at 1500 feet, and all are comparable with other examples of *L. a. virginianus* in the Biological Survey Collection.

**Lynx canadensis** (Kerr). Canada Lynx.

Rather a common animal, if the accounts of guides are correct.

**Vulpes fulvus** (Desmarest). Red Fox.

Quite common throughout the lower parts of the region, where they are often seen on roads.

**Lutra canadensis** (Schreber). Otter.

Quite common along the lower streams and ponds where fish abound.

**Gulo luscus** (Linn.). Wolverine.

The trappers all denied having seen or heard of the wolverine in the region, though they were acquainted with the animal by repute.

**Mustela pennanti** (Erxleben). Fisher.

From the accounts of our cooks the fisher is one of the commonest and most valuable of their fur bearing catch.

**Mustela americana** (Turton). Eastern Marten.

Common up to timber line.

**Lutreola vison** (Schreber). Mink.

Mink are common and range up to timber line. On August 26, I caught an adult specimen at an altitude of 3200 feet, 1700 feet above, and five miles beyond, the upper limit of fish-inhabited waters. Heavy rains had filled a usually dry water course in the upper part of the middle basin, and he had probably followed this up.

**Putorius cicognani** (Bonaparte). Small Brown Weasel.

Very common in the woods in the south basin, and occurring at all altitudes. I caught one on the tableland in a caribou runway leading to a spring, and three at Chimney Pond. All these specimens are peculiar in the deep rich yellow of the under parts, which varies from sulphur to rich saffron, differing thereby from all the specimens that I examined in the Biological Survey and American Museum Collections.

**? Mephitis mephitis** (Schreber). Skunk.

Very common along the streams, where they are said to be increasing rapidly.

**Procyon lotor** (Linn.). Raccoon.

Common along streams at the lower levels.

**Ursus americanus** (Pallas). Black Bear.

Still quite common. Several are killed each year.

**Condylura cristata** (Linn.). Star-nosed Mole.

Two specimens were caught in the grassy clearing of my base camp, at 500 feet, but no signs of them were observed elsewhere.

**Blarina brevicauda** (Say). Short-tailed Shrew.

The short-tailed shrew is by far the most abundant mammal near Katahdin. In the clearing around the base camp, and in the adjacent

woods they swarm. I caught one in my hands in some diapensia turf just below the edge of the tableland, and trapped one on the tableland at 4500 feet. They seem to take oatmeal bait as readily as flesh.

**Sorex albibarbis** (Cope.). Water Shrew.

Two specimens of this rather scarce shrew were caught, one at 2400 feet, the other at 3000 feet, but assiduous trapping failed to secure others. A comparison of the two with the type in the National Museum shows them to be perfectly typical.

**Sorex personatus** (I. Geoffroy). Northern Masked Shrew.

One specimen was secured near a spring in the fir scrub on the tableland at 4500 feet.

## Conclusions.

That the flora of the north basin of Katahdin, of the slopes above timber line, and of the tableland is Hudsonian is evident from the occurence there of such plants as *Savastana alpina*, *Phleum alpinum*, *Poa laxa*, *Carex bigelovii*, *Scirpus cæspitosus*, *Juncus trifidus*, *Salix uva-ursi*, *Salix herbacea*, *Polygonum viviparum*, *Arenaria groenlandica*, *Cardamine bellidifolia*, *Saxifraga comosa*, *Empetrum nigrum*, *Betula glandulosa*, *Rhododendron lapponicum*, *Chamæcistus procumbens*, *Cassiope hypnoides*, *Phyllodoce cærulea*, *Mairania alpina*, *Vaccinium uliginosum*, *Vaccinium cæspitosum*, *Diapensia lapponica*, *Veronica alpina*, *Nabalus nanus*, *Nabalus boottii*, *Solidago alpestris*, *Gnaphalium supinum*, all of which were recorded by the New England Botanical Club party of July, 1900 (Rhodora, Vol. 3, No. 30, January 1901), and many of these are rather Arctic than Hudsonian.

From the species of mammals found it is evident that the entire Katahdin region is covered by the Canadian mammalian fauna, with the possible exception of *Synaptomys sphagnicola* Preble. The first recorded specimen of this species was taken in the Canadian zone near the foot of Mt. Washington, the second and third, the only others, in territory that so far as altitude and temperature are concerned should surely be considered as Hudsonian. From the evidence at hand—the occurence of this animal with Hudsonian plants, with indications of a colony of some size, at a very recent date, and its absence from surrounding Canadian territory—it seems probable that it is a Hudsonian form, and that it occured in the lower zone on Mt. Washington, as Mr. Preble has suggested, a wanderer from its native belt.

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PROCEEDINGS

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# EIGHT NEW MAMMALS FROM THE UNITED STATES.

BY C. HART MERRIAM.

Among the recent additions to the mammal collection of the Biological Survey are a cougar from the desert region bordering the Lower Colorado, below Yuma, Arizona, presented by Herbert Brown; and a large gray fox from New Hampshire, presented by Abbott H. Thayer. Both of these animals appear to be new. In publishing brief diagnoses of them, the opportunity is taken to describe several other unnamed mammals that have been for some years in the collection of the Biological Survey.

**Felis aztecus browni** subsp. nov.

*Type* from Lower Colorado River 12 miles south of Yuma, Arizona. No. 125,719 ♂ ad., U. S. National Museum, Biological Survey Collection. February, 1903. Collected by Herbert Brown.

*Characters.*—Similar to *aztecus* but slightly smaller and paler, with much smaller and lower audital bullæ, and smaller lateral teeth, particularly the canines and carnassials. The incisors are the same size as in *aztecus*, but the canines are much more slender, and the premolars (except the rudimentary upper one) and carnassials are very much smaller. The upper carnassial measures only 20.5 mm., while in *aztecus* of the same sex (♂) it measures 24 mm. The bullæ are essentially of the same length as in *aztecus* but are narrow and low, lacking the usual inflation.

They measure in transverse diameter, from meatus to front of foramen lacerum posticus, only 16 mm., while those of *aztecus* usually measure 20 mm. or more. The difference in height is equally striking. In color the animal is very much paler and grayer (less red) than *aztecus*.

*Remarks.*—The small size of the bullæ seems to indicate that the Colorado Desert Cougar finds his prey more by sight than hearing; and the slender canines and small lateral teeth indicate that he preys on smaller animals than the deer-killing Cougar of the uplands.

*Measurements* (in flesh).—"Tip of nose to tip of tail 7 ft. 4 in.: tail 28½ in. Weight 170 pounds."

### **Urocyon cinereoargenteus borealis** subsp. nov.

*Type* from Marlboro, 7 miles from Monadnock, New Hampshire. No. 119,725 ♂ ad., U. S. National Museum, Biological Survey Collection. November, 1902. Abbott H. Thayer.

*Characters.*—Similar to *cinereoargenteus* but decidedly larger, with marked skull and tooth differences. Skull larger and heavier; nasals longer and more slender posteriorly; palate broader; pterygoid fossa much broader, with sides more flaring (less vertical); teeth (particularly the upper molars and last lower premolar, pm $\frac{4}{}$) slightly larger and decidedly thicker; last upper molar conspicuously larger (outer side 10 mm.), with heel broader and heavier. The 4th lower premolar is larger than in any known member of the genus.

*Cranial measurements.*—(Type specimen ♂ ad.): Basal length 126; basilar length of Hensel 118.5; zygomatic breadth 73; palatal length 63; postpalatal length 55; front of canine to back of last upper molar 56.

### **Urocyon catalinæ** sp. nov.

*Type* from Catalina Island, Santa Barbara Islands, California. No. 45,228 ♂ ad., U. S. National Museum, Biological Survey Collection.

*Geographic distribution.*—Catalina Island, California.

*Characters.*—Similar to *littoralis*, but tail much longer, throat purer white; white of underside of thigh and upper side of hind foot greatly restricted; dusky patch at base of whiskers well defined.

*Cranial characters.*—Skull similar to that of *littoralis*, but nasals narrower and not constricted in the middle; rostrum longer and more slender; anterior ascending arm of jugal thicker; bullæ more inflated and less flattened anteriorly. *Urocyon catalinæ* agrees with *littoralis* and differs from all the others in having the nasals broad posteriorly and obliquely truncate, and the frontal spines short.

*Measurements.*—Male: Total length 795; tail 298; hind foot 112. Female: total length 720; tail 270; hind foot 112. Two specimens weighed in the flesh: ♂ 5 lbs.; ♀ 4½ lbs.

### Urocyon clementæ sp. nov.

*Type* from San Clemente Island, Santa Barbara Islands, California. No. 92,034 ♂ ad., U. S. National Museum, Biological Survey Collection.

*Geographic distribution.*—San Clemente Island, California.

*Characters.*—Similar to *littoralis*, but dusky patch at base of whiskers much blacker and more sharply defined, with a clean white area between it and base of nose-pad, as in *santacruzæ*; throat clearer white; underside of thigh and upperside of hind foot whitish, in some cases nearly pure white.

*Cranial characters.*—Skull similar to *littoralis*, but smaller; nasals more tapering posteriorly and broadest in the middle (instead of constricted in the middle); rostrum more slender; frontal spines rather long; anterior ascending arm of jugal very broad; bullæ smaller and more inflated; upper carnassial narrower. *U. clementæ* differs from *catalinæ*, its neighbor in the southern group, as follows: size smaller; nasals broader in the middle and more tapering posteriorly; bullæ more inflated (especially anteriorly); carnassial and molar teeth smaller.

*Measurements.*—Average of 6 specimens: total length 688; tail 250; hind foot in dry skin 100.

### Urocyon littoralis santacruzæ subsp. nov.

*Type* from Santa Cruz Island, Santa Barbara Islands, California. No. $\frac{34852}{47117}$ ♀ ad., U. S. National Museum, Biological Survey Collection.

*Geographic distribution.*—Santa Cruz Island, California.

*Characters.*—Similar to *littoralis*, but fulvous areas slightly more extensive and more intense; dusky patch at base of whiskers larger and darker; whitish area on underside of thigh and top of hind foot suffused with buffy fulvous; nasals slender and tapering posteriorly.

*Cranial characters.*—Similar to *littoralis*, but skull slightly smaller; nasals much narrower, slender and tapering (instead of expanded) posteriorly, and not constricted in the middle; frontal spines long; rostrum narrower; anterior ascending arm of jugal broader; bullæ smaller, more inflated posteriorly, narrower anteriorly; basioccipital narrower; upper carnassial narrower.

*Measurements.*—Average of 3 specimens: total length 708; tail 266; hind foot 109.

**Cranial measurements of Island Foxes.**

| | *littoralis* | *santacruzæ* | | *clementæ* | | *catalinæ* | |
|---|---|---|---|---|---|---|---|
| | ♀ ad. | ♂ | ♀ | ♂ | ♀ | ♂ | ♀ |
| Basilar length. | 93.5 | 96 | 90 | 94 | 91 | 98 | 95 |
| Palatal length. | 49 | 53 | 49 | 50 | 48 | 53 | 50 |
| Postpalatal length. | 44 | 43.5 | 40.5 | 43.5 | 43.5 | 45 | 44.5 |
| Zygomatic breadth. | 57 | 57.5 | 55 | 56.5 | 55.5 | 60 | 57.5 |
| Breadth of nasals at apex of premaxillæ. | 7 | 5.5 | 5.5 | 7.5 | 7 | 6.5 | 7 |
| Upper series of teeth (canine to last molar). | 43.5 | 44.5 | 43 | 45.5 | 44 | 47 | 44 |

**Putorius streatori leptus** subsp. nov.

*Type* from Silverton, Colorado. No. 56,800 ♂ yg. ad., U. S. National Museum, Biological Survey Collection. October 20, 1893. J. Alden Loring. Original No. 1185.

*Characters.*—Similar to *streatori* but smaller; *black tip of tail very much shorter* (projecting only 15 mm. beyond white hairs): Teeth about same size as in *streatori*, but skull disproportionally smaller; frontals and rostrum more depressed; bullæ smaller and narrower.

*Winter pelage.*—White all over except short black tip of tail. White without yellowish tinge. (Two males from Colorado—the type from Silverton, and another from Crested Butte collected February 17, 1902 by E. R. Warren).

*Summer pelage.*—Upperparts uniform drab brown (or between drab brown and hazel, but lacking the reddish of hazel); end of tail black; underparts white throughout with straight line of demarcation along sides, the white reaching down on underside of legs to wrists and ankles; rest of legs and feet brown like back; toes of forefeet white on upper side; toes of hind feet mixed brown and white. (Young female from Rocky Mountains of Alberta, Canada, near Henry House, July 21, 1896, J. Alden Loring).

*Remarks.*—The animal is nearly as small as *rixosus*, from which it is easily distinguished by the longer tail and black tip, and slightly larger skull and teeth.

*Measurements.*—Type specimen (♂ yg. ad.): total length 243; tail vertebræ 64; hind foot 31. Skull: basal length 31.5; basilar length of hensel 30.5; zygomatic breadth 17.5; interorbital breadth 7.5; palatal length 13; postpalatal length 18; toothrow from front of canine to back of last molar 9.

### **Eutamias canicaudus** sp. nov.

*Type* from Spokane, State of Washington. No. $\frac{27007}{34428}$ ♀ ad., U. S. National Museum, Biological Survey Collection. April 11, 1891. C. P. Streator. Original No. 639.

*Characters.*—Size rather large; ears medium or rather small; tail rather long; general color in spring pelage buffy gray, tail grizzled gray—decidedly grayer (less red) than in neighboring species; outer pair of light stripes strikingly white.

*Color.*—Spring pelage (=left over winter pelage): upperparts, including middle pair of light stripes vinaceous gray, with enough admixture of white-tipped hairs to produce a hoary effect; median, dorsal and lateral pair of black stripes (5 in all) pure black, the outer pair slightly washed with fulvous; upperside of tail grizzled gray, edged with whitish; underside with a median buffy band bordered with black and edged with whitish. Post-breeding pelage: neck, sides and edges of stripes washed with ochraceous or light fulvous.

*Remarks.*—This handsome new species with showy white side stripe is at all seasons easily distinguished from its neighbors, *felix* and *affinis* by the color of the tail, the general tone of which is gray. Both of the others have strikingly *red* tails, the underside and edges being intense fulvous or ferruginous. The geographic range of the gray-tail chipmunk so far as now known is the ponderosa pine forest of the Transition zone in northern Idaho and the adjoining eastern edge of the State of Washington.

*Measurements.*—Type (♀ ad.): total length 228; tail vertebræ 98; hind foot 32. Average of 6 adults from type locality: total length 229; tail vertebræ 104; hind foot 34.

### **Citellus grammurus utah** subsp. nov.

*Type* from foot of Wasatch Mountains near Ogden, Utah. No. $\frac{4767}{3427}$ ♀ ad., Merriam Collection. October 10, 1888. Vernon Bailey. Original No. 291.

*Characters.*—Similar to *grammurus* but smaller, ears larger, back much redder; head in late summer pelage much more reddish brown; tail darker; nasal bones anteriorly averaging broader, more inflated and more truncate; also slightly longer and projecting posteriorly behind premaxillæ; fronts of incisors paler yellow (in *grammurus* more orange).

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PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# FOUR NEW MAMMALS, INCLUDING A NEW GENUS (*TEANOPUS*), FROM MEXICO.

BY C. HART MERRIAM.

E. W. Nelson, and his able assistant E. A. Goldman, in their explorations in Mexico for the Biological Survey of the U. S. Department of Agriculture, still continue to discover new species of mammals. Four of these are here described. One is a large ground squirrel quite unlike any hitherto known; another is a wood rat for which I am reluctantly obliged to erect a new genus; still another is a new member of the rare and little known genus *Nelsonia*, while the last is a large pocket gopher from Mt. Patamban.

**Citellus adocetus** sp. nov.

*Type* from La Salada, 40 miles south of Uruapan, Michoacan, Mexico. No. 126,129 ♀ ad., U. S. National Museum, Biological Survey Collection. March 17, 1903. E. W. Nelson and E. A. Goldman. Original No. 16,183.

*Characters.*—Unique; not like any known species. Allied to *Citellus annulatus* but much smaller and without trace of the rings on the tail. Pelage hispid; ears short; tail rather long; color uniform grizzled grayish or buffy without markings.

*Color.*—Upper parts strongly grizzled grayish and black, changing with season to dull ochraceous brown; top of head usually darker (in

some specimens blackish); stripe from side of nose passing over eye pale buffy, sometimes washed with or bordered above by pale fulvous; short band under eye (rarely reaching to ear) buffy; cheeks grizzled, washed with fulvous; underparts buffy or yellowish buffy, sometimes becoming fulvous on throat and chin; fore legs and feet and hind feet dull pale fulvous, the fulvous, in the brown pelage, extending over thighs; sides of neck washed with fulvous; tail coarsely grizzled black and buffy, bordered on terminal half with subapical black band and edged with buffy fulvous; median line of distal half of underside usually pale fulvous.

*Cranial characters.*—Skull about the size of that of *Citellus mexicanus* but frontal region very much broader, anterior upper premolar decidedly smaller, and front of incisors intense chestnut instead of pale yellowish. Compared with its nearest relative, *C. annulatus*, the skull is only about three-fourths as large, rostrum fore-shortened, jugal broader, coronoid and angular processes of jaw longer; the bullæ are large, the frontal shield broad, the postorbital processes long and strongly decurved.

*Measurements.*—Type (♀ ad.): total length 350; tail vertebræ 156; hind foot 48. Average of 10 specimens from type locality: total length 341.6; tail vertebræ 158.7; hind foot 46.9.

*Cranial measurements.*—Topotype (♂ ad.): basal length 41; palatal length 24; postpalatal length 17; zygomatic breadth 26; interorbital breadth 13; length of tooth row on alveolus 8.25; on crowns 7.5.

## **Nelsonia goldmani** sp. nov.

*Type* from Mt. Tancitaro, Michoacan, Mexico. No. 125,818 ♂ ad., U. S. National Museum, Biological Survey Collection. February 25, 1903. E. W. Nelson and E. A. Goldman. Original No. 16,021.

*Characters.*—Similar to *Nelsonia neotomodon* but darker and grayer (much less fulvous), and with hind feet dusky instead of white. Tail well haired toward and at tip, as in *neotomodon*.

*Color.*—Upperparts dark slate gray, lightly washed, especially on sides, with pale ochraceous; underparts white, the plumbeous underfur showing through. Tail dusky above, becoming gradually paler beneath —not sharply bicolor as in *N. neotomodon*. Young dark slate color, very different from the buffy grayish young of *N. neotomodon*.

*Cranial characters.*—Skull similar to that of *N. neotomodon* but more angular; flatter between orbits and over front of braincase; anterior base of zygoma with vertical lamella well marked, forming a spine when viewed from above [absent in *neotomodon*]; nasals narrower; rostrum more constricted at base by better defined antorbital fossa.

*Measurements.*—Average of 3 specimens from type locality: total length 248; tail vertebræ 122; hind foot 29.

Genus **Teanopus** nob.

*Type, Teanopus phenax* gen. et. sp. nov.

*Characters.*—Size of a middle-sized wood rat (*Neotoma*), which it greatly resembles, though externally still more like *Hodomys vetulus*; ears large and nearly naked; tail long and densely covered with short hairs; soles of fore and hind feet, between pads, completely scutellate —everywhere covered with small tubercles. Skull in general like that of *Neotoma* and *Teonoma*, but audital bullæ enormously inflated vertically, subwheel-shaped, blunt anteriorly, nearly parallel, almost exactly as in *Xenomys;* antorbital slits very large and broadly open; sphenoid vacuities open; braincase without temporal shield. Lower jaw with distinct prominence over root of incisor; angle elongate, its lower border *strongly inflected and upturned*, forming a long shallow trough as in *Teonoma*, but less extreme; infracondylar notch deeper than in either *Neotoma* or *Teonoma*. Last lower molar with reentrant enamel loop on inner side passing obliquely forward in front of its mate on outer side, thus approaching the condition in *Hodomys*.

**Teanopus phenax** sp. nov.

*Type* from Camoa, Rio Mayo, Sonora. No. 95,841 ♀ ad., U. S. National Museum, Biological Survey Collection. November 4, 1898. E. A. Goldman. Original No. 13,258.

*Characters.*—Size and general appearance of *Hodomys vetulus;* tail rather long and black or dusky all round; upperparts buffy gray; underparts yellowish white anteriorly, underfur showing through posteriorly; top and sides of nose dusky; cheeks pale grayish; outer side of foreleg to wrist grayish dusky, sharply contrasted with white of underside; hind foot soiled whitish above; ankles and sides of heel dusky on both sides, bordered with white below.

*Dental characters.*—Molars (except the last lower, described in the generic diagnosis) with enamel folds as in the *albigula* group of *Neotoma*.

*Measurements.*—Type specimen, ♀ ad.: total length 352; tail vertebræ 172; hind foot 37.5. Average of 3 from type locality: total length 365; tail vertebræ 183; hind foot 37.7.

**Platygeomys tylorhinus angustirostris** subsp. nov.

*Type* from Patamban, Michoacan, Mexico. No. 125,688 ♀ ad., U. S. National Museum, Biological Survey Collection. February 2, 1903. Nelson and Goldman. Original No. 15,850.

*Characters.*—Similar in size and general characters to *P. tylorhinus* but color paler and more fulvous, grizzled on back with black-tipped hairs; slaty plumbeous of underparts much paler and washed on tips with pale fulvous. Skull slightly smaller; rostrum, nasals, and incisors decidedly narrower; nasals narrow and strongly arched anteriorly; the posterior half very narrow and of even breadth (sides parallel for posterior half); jugal and pterygoids as in *tylorhinus;* molars smaller. Underjaw much smaller.

*Cranial measurements.*—Skull of type specimen: basal length 53.5; zygomatic breadth anteriorly 38; breadth of rostrum anteriorly 10; breadth of nasals anteriorly 6; at middle 3. The flesh measurements have not yet come in from the field.

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PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# THE SHORT-MOUTHED SNAKE (*EUTAINIA BRACHYSTOMA* COPE) IN SOUTHERN MICHIGAN.

BY HUBERT LYMAN CLARK.

In 1892, Cope described, under the name *Eutainia brachystoma*, a small garter-snake from Franklin County, Pennsylvania, which had been sent to him in alcohol, the distinguishing feature being the small number of labial plates in both the upper and under jaws. Since the description was published no other specimens have been taken and the validity of the species has been openly questioned. It is therefore a matter of considerable interest that the species has been found in the vicinity of Olivet, Michigan, on several occasions, during the spring of 1903. The first specimens taken were a male and female collected April 20, beside a rail fence crossing an open but very wet pasture. The fence ran close beside a pool of water where there was a growth of willow and alder bushes, and it was under the shelter of these bushes that the snakes were found. On April 23, careful search in the same locality revealed a second female and April 29, another female was taken at the same spot. On May 7, still another female was captured beside the same fence but some sixty yards from the bushes. On May 12, a fifth female was taken in a very wet swamp on the margin of a lake, half a mile or more from the above mentioned pasture.

The following table will bring out clearly the characters of the species and the individual peculiarities of the Olivet specimens:

| Number | Date | Sex | Length (mm.) | Gastrosteges | Urosteges | Upper Labials R—L | Lower Labials R—L | Postoculars R—L |
|---|---|---|---|---|---|---|---|---|
| Cope's type. | 1892 | ♂ | 286 | 132 | 72 | 6—6 | 8—8 | 3—3 |
| 1 | April 20, 1903 | ♂ | 472 | 135½ | 61 | 6—6 | 8—8 | 3—3 |
| 2 | April 20 | ♀ | 556 | 133½ | 58 | 6—6 | 8—8 | 2—2 |
| 3 | April 23 | ♀ | 485+ | 137 | ? | 6—6 | 8—8 | 2—2 |
| 4 | April 29 | ♀ | 420 | 136 | 52 | 6—6 | 8—9 | 2—3 |
| 5 | May 7 | ♀ | 411 | 141 | 54 | 7—7 | 8—8 | 2—2 |
| 6 | May 12 | ♀ | 460 | 140 | 58 | 6—6 | 8—8 | 3—3 |

It will be noticed at once that only one of the five females is perfectly normal, all of the others having a reduced number of postocular plates. It is also apparent that the type specimen is not an average representative of the species, since the number of gastrosteges is exceptionally small, while the number of urosteges is unusually large. In Nos. 1 and 2 there were incomplete gastrosteges, which have been counted as half plates. In No. 3, nearly one-half of the tail was missing, so that the urosteges could not be determined.

The new material makes it possible to state more definitely the specific characters, and to correct one or two of Cope's misstatements, which were due to his having only one specimen, and that an alcoholic. In general appearance, the short-mouthed snake is somewhat like the common garter snake (*Eutania sirtalis*) but the head is so much narrower and the tail tapers so much more abruptly that even a very casual glance will suffice to note the difference. In coloration, moreover, there is a very

striking difference between the two species, as indicated by Cope, but his description of the color of *brachystoma* is very misleading, owing to the changes produced by the alcohol. In life, *brachystoma* is very dark brown above, many of the scales being almost black, as are portions of the skin; in some specimens, when the skin is stretched, these black areas appear as a more or less complete double series of squarish spots on each side of the dorsal region; the mid-dorsal row of scales and the inner half of the scales in the row on each side of it are bright yellow anteriorly, gradually becoming duller posteriorly and losing their distinctness on the tail; a similar stripe occurs on each side of the body and includes all the scales of the third row, the lower half of most of those in the fourth row and the upper half of many in the second row; these lateral stripes fade away on the tail but are very bright anteriorly, where they expand so that the entire sides of the neck are very yellow; on this yellow area are several prominent black spots; the first row of scales and the outer ends of the gastrosteges are deep brown, the latter with a dusky yellowish tinge; the ventral surface is dull light olivaceous, darkest near vent, sparsely speckled with black (the exact shade varies considerably, No. 6 having the whole lower surface dark, becoming almost black in front of vent); there is a narrow black spot on the anterior margin of the outer end of the gastrosteges; the head is brown, with a greenish tinge anteriorly; labials yellow, chin white and throat yellowish; parietal spots yellow, very evident. Gastrosteges 132–141 (average 136+); urosteges 61–72 in ♂, 52–58 in ♀; upper labials 6; lower labials 8; postoculars 3; scale rows 19.

The question which naturally arises is: What is the relation of *brachystoma* to *sirtalis?* Had Cope's type remained unique, it might well have been regarded as a sport, merely an unusually aberrant *sirtalis*, and the discovery of a single specimen in Olivet or elsewhere would not necessarily have disproved the correctness of this view. But in the light of the evidence furnished by six specimens of both sexes, taken at various times in several places, such a view is certainly incorrect and there can be no doubt of the distinctness of the two species. The difference in color is constant, in spite of the extraordinary variety shown by *sirtalis;* in the latter the lateral stripes are mainly on the second, partly on the third, row of scales instead of on the

third and fourth as in *brachystoma;* while the deep brown band below these stripes is wanting in *sirtalis.* The difference in form is equally noticeable, though less easily stated; *brachystoma* is more stocky and tapers towards both ends rather abruptly. As regards the number and arrangement of scales, the two species are equally distinct, although individuals occur combining the characters curiously. Thus No. 5 has 7 upper labials on each side, the normal number for *sirtalis*, while No. 4 has 9 lower labials on the left side; out of 320 specimens of *sirtalis* examined this spring, 6 have 6 upper labials on one side but none have that number on both sides, while 12 have 8 upper labials on one side, and 2 have that number on both sides; as regards the lower labials, 268 of the 320 have the lower labials 10 on each side, 9 have 9 on each side, 4 have 11 on each side, and 2 have only 8 on each side, while the remainder have 9 or 11 on one side or the other, except 3 which have 8 on one side. The most interesting case in this connection is a small male *sirtalis*, which has the upper labials 6–7 and the lower 8–8; however, as it has 152 gastrosteges and 75 urosteges and is a perfectly normal *sirtalis* in coloration, it cannot be regarded as in any sense a connecting link with *brachystoma.* In the number of gastrosteges the difference between the two species is striking, *brachystoma* ranging from 132 to 141, with an average of about 136, while the 320 specimens of *sirtalis* range from 142 to 159 and average about 151; and it should be added that of the 320, only one has 142, two have 143, and two 144 gastrosteges. In the number of urosteges the two recorded male *brachystoma* are far apart, 61 and 72, an average of less than 67, but male *sirtalis* range from 64 to 79, with an average of more than 71, and further, only 9 of 163 specimens have less than 67 urosteges; the female *brachystoma* range from 52 to 58 with an average of more than 55, while female *sirtalis* range from 57 to 73, with an average of more than 63, and only 4 out of 157 have less than 59. Cope's statement that "the number of urosteges remains as in" *sirtalis* requires, therefore, some modification, as it is clear that the number is normally decidedly less than in the common garter-snake.

In regard to the habits of *brachystoma*, Cope's statement that "it is one of the forms * * * which * * * have adopted a terrestrial life and more or less burrowing habits" is

open to question. Though not aquatic, this species likes the water and has been found only in its immediate neighborhood. Several specimens have been kept alive, under as natural conditions as possible, and they show considerable readiness to take to the water when alarmed, nor is there any evidence of burrowing or of retreating to holes. Indeed the habits are very much like those of the common garter-snake, except that *brachystoma* is not at all pugnacious, making no attempt to strike when seized or handled.

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PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# DESCRIPTION OF A NEW *NEOTOMA* FROM MEXICO.

BY OUTRAM BANGS.

The collection of mammals made in Mexico by Mr. S. N. Rhoads and his wife, in the winter and spring of 1899, was purchased soon afterwards by my brother and myself, and is now in the Museum of Comparative Zoology, at Cambridge, Mass. When identifying the species, a year or two ago, I was much puzzled by a *Neotoma* from Texolo, Vera Cruz, that I could not place with any described form, and showed it to Mr. E. W. Nelson, who at once declared it a species he had never taken or even seen, and suggested I send it to Dr. Merriam for comparison with the series in the Biological Survey Collection. This I accordingly did, and Dr. Merriam has most kindly compared it for me with all known forms to which it might be related, and pronounces it a very distinct species, with, apparently, no near ally among the known members of the genus. This new *Neotoma*, of which Mr. Rhoads took five examples, all at the same place, may be known as:

**Neotoma distincta** sp. nov.

*Type* from Texolo, Vera Cruz, Mexico. Old adult ♂ No. 9819, Bangs Collection. (Collection Museum of Comparative Zoology.) Collected March 8, 1899, by S. N. Rhoads.

*Characters.*—A very distinct species, with a wholly black tail as in *N. tenuicauda*, but much larger than that animal, and differing from it markedly in skull characters; much like *N. fulviventer* in color, except the tail, which is bicolor in that species, but rather darker; much larger than *N. fulviventer* and with a much larger and more massive skull; rostrum and nasals longer; rostrum more swollen over roots of incisors; antorbital fossa correspondingly more pronounced; zygomata more spreading posteriorly (in *N. fulviventer* the sides are parallel); superciliary ridges more elevated and more pinched in over orbits; incisors and molars much larger and heavier.

*Color.*—General color of upperparts mummy brown, the back much darkened by the thick sprinkling of brownish-black tipped hairs; sides paler, more russet; sides of nose and upper lips dull grayish brown; chin, upper throat and narrow belly stripe dull gray; a wide pectoral collar, ochraceous-buff; lower middle belly and ventral region yellowish white; feet and hands dull grayish brown; toes and fingers white; ears rather small, nearly naked, dusky; tail unicolor, black; whiskers mixed black and colorless.

**Measurements.**

| No. | | Sex | Total length | Tail vert. | Hind foot | Ear |
|---|---|---|---|---|---|---|
| 9819 | Type | ♂ old ad. | 417 | 206 | 41 | 23 |
| 9818 | Topotype | ♂ old ad. | 370 | 165 | 41 | 23 |
| 9821 | Topotype | ♂ old ad. | 395 | 185 | 40 | 26 |
| 9820 | Topotype | ♀ ad. | 377 | 190 | 40 | 20 |
| 9822 | Topotype | ♂ young ad. | 370 | 165 | 41 | 23 |

Skull, old adult ♂, type: basal length, 43; occipito-nasal length, 48; zygomatic width, 25; mastoid width, 19.4; interorbital width, 5.2; length of nasals, 19; width of nasals, 5.6; length of palate to palatal notch, 22.2; length of palatal slits, 10.6; length of upper molar series, 9.4; length of single half of mandible, 29.6.

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PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# THE HAWTHORNS OF NORTHEASTERN WISCONSIN.

BY J. H. SCHUETTE.

The genus *Crataegus* is variable and has always given trouble to field botanists. As a result of deficient material and imperfect observations there is a confused treatment, even in leading manuals, and this may be the cause of the excessive splitting of species in recent years. There are six distinct species or rather groups in northeastern Wisconsin each including forms which are not entitled to specific rank although exhibiting some constant differences. These variant forms should be considered only as subspecies. Hawthorns, like roses, willows, oaks and many other woody plants furnish valuable material for research to evolutionists, who have hitherto turned their attention chiefly to the animal kingdom. The variability and polymorphism are due to the influence of the evironment and soil, the climate, effects of age and injury, crossing, and progressive heredity. In the region of Green Bay, where the retiring waters of bay and lake left distinct evidences of former higher levels in Pleistocene and Recent geological time, variation due to changed environment is illustrated especially by the wild roses. Thus individuals growing on the younger formations of moist and wet sand, or near the surf, present characters plainly different from those of others of the same species growing on the higher alluvial or Pleistocene ridges. *Crataegus* like *Rosa* is very susceptible to such

influences. Therefore no expert author should venture to base a new species on a single specimen or a single or slight character. The definitive characters should be constant and direct. Our attention is first of all attracted by the external differences in plants. Form, aspect, and habit, therefore, are all important in the discrimination of variations and in the elevation of subspecies to species, at least for popular recognition. Plants like the hawthorns require observation and investigation under different conditions of environment before being subjected to further specific or subspecific differentiation.

After hunting for years for *Crataegus crus-galli* I found on the peninsula between Lake Michigan and Green Bay, on Washington Island, the next island north of Death Door, Wisconsin, a group of nice trees with shining, thick leaves and rather long thorns. I believed I had at length found the desired species or a variety of it, but later discovering my mistake I called this form *C. punctata decipiens*, and reached the conclusion that *C. crus-galli* does not occur in our northwest. This view is supported by a specimen received in exchange from the National Herbarium labelled "*Crataegus crus-galli*" and collected in Minnesota. Although I have not seen the buds and fruits I regard it as *C. tomentosa*. The error, due to the meagre and misleading descriptions given in current manuals, is very excusable.

Finally, mention should be made of some interesting observations on the effects of the cold and moist atmosphere near Lake Michigan. At the outset the entire vegetation on the peninsula between Green Bay and the lake is delayed 3 or 4 weeks as compared with that of the surrounding region. Secondly, the atmospheric conditions due to the proximity of the water appear to produce variations and freaks in species, even shrubs seeming to be changed into trees. Near Kewaunee, Wisconsin, on an elevated plain, I met with a cluster of trees, each about 30 feet high and 10 inches in diameter, with the characters of *Acer spicatum*, the well known shrub. All but one of these trees have since been exterminated by clearing. On the southern grassy slope of this plain is a little grove of *Crataegus* trees, 12–18 feet high and 3–5 inches in diameter. I am, however not certain as to their specific identity since I have not seen the buds and flowers.

Since the nomenclature of *Crataegus* seems to be somewhat unsettled, I have employed the familiar names while embodying my own views in the following descriptions. A series of specimens, including the types of the new forms, has been presented to the Biological Society of Washington, and by the latter turned over to the United States National Museum.

**Artificial Key to the Hawthorns of Northeastern Wisconsin.**

I. Fertile shoots of the current season pubescent.
  1. Leaves cordate, truncate or rounded at base, tomentose beneath; petioles not margined, tomentose 1. *C. subvillosa* Schrader.
  2. Leaves acute or acuminate at base; petioles margined.
    *a.* Sepals (calyx lobes) toothed (glandular in No. 3).
      * Anthers red; petioles and outer surface of sepals pubescent; flowering two weeks later than No. 1 2. *C. tomentosa* L.
      ** Anthers white; sepals glabrous outside (sometimes hairy at base) - - 3. *C. macracantha* Lodd.
    *b.* Sepals entire, glandless, their outer surface glabrous in the upper half - - - - - 4. *C. punctata* Jacq.

II. Fertile shoots of the current season glabrous.
  1. Corymb and calyx pubescent; sepals deeply (almost fimbriately) toothed; petioles not more than one-sixth as long as the blade, margined, groove hairy and impressed.
    *a.* Anthers red; stamens 12-20; calyx cup hairy; leaves hairy beneath, especially on the nerves 5. *C. pyrifolia* Ait.
    *b.* Anthers white in bud, gradually turning brown; stamens 8-12 (rarely more), calyx cup and leaves beneath usually glabrous - - 6. *C. pyrifolia sylvestris* subsp. nov.
  2. Corymb and calyx cup glabrous*; sepals slightly dentate or entire; petioles at least one-third as long as the blade, glabrous beset with few glands.
    *a.* Anthers white; sepals toothed and conspicuously glandular; petioles margined, blade acute at base, its teeth more or less obtuse if the small terminal gland is removed - - - - - 7. *C. caliciglabra* sp. nov.
    *b.* Anthers red; sepals with few gland-tipped teeth or entire and glandless; petioles marginless by tightly inrolled edges, filiform, usually more than one-half as long as the blade - - - - - - - 8. *C. coccinea* L. (For subspecies see below, description No. 8).

* In some forms of *C. coccinea* slightly scattered with soft hairs, but glabrate.

## Descriptions of species and subspecies.

### 1. **Crataegus subvillosa** Schrader.

A tree with gray, ascending branches, 20–30 feet high and 6–9 inches in diameter. It is easily distinguished by the generally large, densely villous-tomentose leaves with mostly cordate, truncate or even acute bases and slender marginless petioles. The corymbs and flowers are large; sepals hairy both within and without, teeth and glands none or obscure; stamens 12-20 with whitish, later brownish, anthers; the disk with mostly 3-4 styles. The dull red fruits vary in size up to that of cherries and are globose, ovoid or obconical. Thorns few, black, slender, or short and stout. Flowering in the second half of May. Not rare; on banks, slopes, and in moist soil.

### 2. **Crataegus tomentosa** L.

A slender, crookedly bent but upright, gray tree with few short branches, 8–10 feet high and as thick as a heavy walking stick. The leaves are ovate or obovate (often somewhat oblong or roundish), acute at top, acute or acuminate at base, the blade decurrent on the short, tomentose petiole almost to the end; marginal teeth cuspidately tipped, the blade pubescent beneath, glabrous above; the bracts of the buds are large and red, of the flowers linear-lanceolate, brownish, obscurely toothed and glandless. The compound corymb, the calyx cup, and the usually irregularly toothed and glandless or minutely glandular sepals are finely tomentose. Stamens 12-20; anthers red; pistils 2 or 3; fruits small, somewhat pear-shaped, oblong when young, bulged at the middle like a cask, and quite red when ripe. Not rare in fertile soil or clay, which it prefers. It is unmistakably distinct and easily recognized by its late flowering, about June 10–25, two weeks later than the species last described.

### 3. **Crataegus macracantha** Lodd.

This species is distinguishable from the last by the white anthers. It is a thorny, spreading, gray shrub, 6–10 feet high. Leaves generally round-ovate, acute or acutish at each end, obscurely lobed and toothed (teeth tipped with a small gland, obtuse or obtusish if this gland is removed), hairy beneath; petiole usually rather slender, mostly with few glands, margined and hairy. Bud scales reddish; stipules and bracts lance-linear, quite glandular; corymbs compound, hairy, as are the calyx cups; sepals glabrous outside, toothed, and glandular on the short teeth. Stamens 8-10; pistils 4 (3-5); fruits red, ovoid or globose, as large as big peas. Thorns dark brown, shining, rather

long and numerous, as are the flowers and fruits. Flowering the latter half of May. Common. Prefers moist soil on banks and slopes (Compare No. 7, below).

### 4. **Crataegus punctata** Jacq.

A large shrub or usually a small tree, 12–25 feet high and 4–6 inches in diameter, with numerous, nearly horizontal, far-spreading, gray branches and few gray, slender thorns. Leaves obovate to spatulate, acute at apex, cuneate at base, decurrent on the hairy or tomentose, short petiole (in some forms the latter only margined), entire in the lower, irregularly toothed in the upper part, the teeth obscurely glandular or glandless, the nerves hairy underneath. Bud scales brown, but involucral leaves rather large, obovate or spatulate, greenish, brown, or whitish. Stipules and bracts chiefly linear, slender, brown and glandular on the margins, of various forms in sterile shoots. Corymbs compound, with profuse, large flowers. Calyx cup densely hairy or tomentose; sepals entire and glandless, glabrous outside in the upper half. Stamens 12-20; anthers at first whitish, later brown and dark; pistils 3; fruits usually large, globose, reddish or yellowish-green with whitish dots. This conspicuous tree with a handsome top is densely covered with white flowers at the end of May and the early part of June. It prefers calcareous and open clay-soil pastures. Common, especially on the peninsula between Lake Michigan and Green Bay.

Variations from the type are occasionally observed in the form and size of the leaves, the sepals, the glands, degree of pubescence, etc. The variety with shining, thick leaves and with more numerous, rather larger thorns is *C. punctata decipiens* subsp. nov. (type specimen, No. 431,497, U. S. National Herbarium), *C. crus-galli* is not found in the region under consideration.

### 5. **Crataegus pyrifolia** Ait.

A tree with gray ascending branches forming a rather close, somewhat obtuse top. Shoots of the preceding season brown and shining, those of the current year green, later brown; bud scales coriaceous, brown; involucral leaves obovate to spatulate, red with a green zone along the margins, glandular; stipules and bracts very fugaceous, mostly filiform or linear, and glandular; leaves broadly elliptic but acute at each end (or ovate or obovate), dull, hairy on the nerves on both faces, the pubescence extending down on the upper side of the longitudinal groove of the otherwise glabrous, glandless, margined, short petiole which rarely exceeds one-sixth the length of the blade; teeth of blade glandless or obscurely glandular. Corymb compound, pubescent; calyx cup hairy; sepals almost fimbriately toothed and glandular, glabrous outside; stamens usually 12 to 20; anthers red; pistils 2-3; fruits the size of peas,

globose or globular, red. Thorns generally short and stout, straight, dark brown and shining, gray on older branches. Flowering toward the end of May. Not rare on rich and moist soil.

### 6. Crataegus pyrifolia *sylvestris* subsp. nov.

This plant, probably a woods-living form, is closely allied to the last. It is, however, distinguished by having usually 10 (7–12) stamens; anthers white becoming yellow, then brown; the sepals outside glabrous or nearly so, in general less hairy on the corymb; bracts narrowly lanceolate to linear or filiform; the petioles slightly longer, often one-fourth as long as the blade; the upper involucral leaves sometimes uniform whitish or approaching the last with greenish or yellowish margins, usually slender, longer, often bent, numerous on shrubs, fewer on trees. A slender tree (8–15 feet high) with slender branches, occurring not rarely in wet, moist, shady woods. Flowering with the last. Type specimen, No. 431,500, U. S. National Herbarium.

### 7. Crataegus caliciglabra sp. nov.

A low, spreading, thorny shrub on borders of open fields and in groves, similar in general to No. 3, but distinguished by the following characters: shoots of the current year glabrous; calyx, except the upper side of the sepals absolutely glabrous; the whole plant otherwise glabrous; the petiole obviously marked with 3-5 glands; the uppermost involucral leaves green with a reddish midnerve, spatulate; the lanceolate, slender sepals usually longer than the cup when flowering. This species is distinguished from *C. pyrifolia* and *C. coccinea* by its white anthers and the more obtuse teeth of the blade. Flowering with the last. Type specimen, No. 431,498, U. S. National Herbarium.

### 8. Crataegus coccinea L.

A polymorphous shrub, nearly every individual exhibiting some variation. The young plants vary from the old ones, the solitary individuals from those in groups. According to the environment characters disappear, are added, or fail to present a distinct appearance. For these reasons the following description includes several forms recently regarded as species.

The typical form is only a shrub, 3 to 10 feet high. The branches are gray, ascending, more or less divergent, roundish, striate or irregularly angular, and somewhat undulately-bent; the twigs yellowish or brownish; the fertile shoots of the season glabrous; the thorns short and stout or long and slender, brown (gray on old twigs), mostly black at top and brown-red below, sometimes with a slightly silver-gray cover; petioles

filiform, slender, marginless, usually as long as or longer than half the length of the blade, beset with few glands. The blade is broad-ovate in outline, acute at the top, obscurely protracted at the cordate, truncate or rounded base, lower face soon glabrous, teeth sharply acute, slightly glandular-tipped or glandless. Bud scales obovate, red; stipules like the bracts linear to narrow-lanceolate, reddish or yellowish, soon deciduous, lined on the margins with brown or yellow glands. Corymbs compound, glabrous, sometimes thinly scattered with deciduous or fugaceous soft hairs. Calyx cup glabrous; sepals glabrous outside, slightly hairy or smooth inside, either with a few or more basal glandular teeth or entire and glandless. Stamens in some forms 12–20, usually not exceeding 12; anthers red; pistils 3–5; fruits ovoid, red, the size of large peas. Flowering from the end of May. Frequent on dry soil.

In the type, cordate and truncate leaves are prevalent; the sepals more or less toothed and glandular, hairy inside; the stamens rarely more than 12, and the thorns usually slender. *Crataegus coccinea eglandulosa* subsp. nov. (type specimen, No. 431,494, U. S. National Herbarium), on dry, exposed soil, has entire (or nearly so), glandless sepals, being glabrous within or obscurely hairy; usually 5–8 stamens; 3 or 4 styles; and usually stout and short thorns. *C. schuettei* Ashe, close to the type and perhaps only a variety, is distinguished by the toothed and glandular, ventrally hairy sepals, the mostly 12–20 stamens, the petioles with a deep, hairy, longitudinal groove. It is of slightly higher growth and prefers somewhat moist soil.

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PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

## GENERAL NOTES.

### The proper name of the Redwood Chickaree.

In the Proceedings of the Biological Society of Washington (Vol. XI, pp. 281–282, December 30, 1897), I described as a new subspecies a form of *Sciurus* (*Tamiasciurus*) *douglasi*, that inhabits the costal strip of northern California west of the Coast Range, calling it *Sciurus hudsonicus orarius*. A few months later Dr. J. A. Allen published a review of the subgenus *Tamiasciurus** and to my astonishment substituted Audubon's and Bachman's name, *Sciurus mollipilosus* for this animal.

As I cannot agree with Dr. Allen on this point of synonymy, it seems well to point out why, in my opinion, the animal in question should be known by my name and not that of Audubon and Bachman.

*Sciurus mollipilosus* was first described by Audubon and Bachman in the Proc. Acad. of Nat. Sci., Phila., October, 1841, p. 102, from specimens said to have come from the "Northern parts of California." A little later the species was figured and again described in Quad. of N. Am., Vol. I, pp. 157–158, pl. XIX, by the same authors who changed the locality to "The northern part of California near the Pacific Ocean." The figure and both descriptions indicate an animal very rusty brown above and grayish below, the underparts being said to be "cinereous, lightly tinged in some places with rufous." The tail was described as "brown, twice annulated with black; a few of the hairs are tipped with gray." None of these characters agree in the least with the colors of the Redwood Chickaree, which is very dark and distinctly olivaceous above, without reddish brown shades, except sometimes a little at base of tail and on rump, and varies in color below from pale ochraceous-buff

*Bull. Amer. Mus. Nat. Hist., X, pp. 249–298, July 22, 1898.

to strong ochraceous and has the tail deeply fringed with white at all seasons.

True *Sciurus douglasi*, the nearest relative of *S. orarius*, was perfectly well known to the distinguished authors of the Quadrupeds of North America, having been, in fact, first described by Bachman himself, but they make no mention of their *Sciurus mollipilosus* being at all like it, comparing the latter with the eastern Chickaree, *S. hudsonicus*.

At the time I wrote my description it seemed to me so perfectly evident that *S. mollipilosus* was a member of the *hudsonicus* and not the *douglasi* group that I did not mention that species though I carefully compared specimens of the new form with the descriptions and the plate. Going over the ground again, even more carefully, I am still emphatically of the same opinion.

As to the origin of the specimens (there were said to be specimens) upon which the name *Sciurus mollipilosus* was based—the only ground Dr. Allen gives for using the name to supplant my *S. orarius*—a word is sufficient. When Audubon and Bachman knew the exact source of their material they always stated it in detail, and such, in those days, little-known and indefinate regions as "Northern parts of California" and "Northern part of California near the Pacific Ocean" means merely northwest coast of North America, and is analogous to "that part of California that adjoins Mexico" of the same authors.

To sum up: In my opinion *Sciurus mollipilosus* Audubon and Bachman may have been based on the animal now called *Sciurus hudsonicus vancouverensis* Allen, with which the plate and descriptions agree very closely, or possibly it may have been *Sciurus hudsonicus streatori*, but whatever it was, it was a member of the *hudsonicus* group and has nothing whatever to do with the Redwood Chickaree which belongs to the *douglasi* group, and should be known as *Sciurus* (*Tamiasciurus*) *douglasi orarius* (Bangs).—*Outram Bangs.*

## A new name for the Dinosaur Haplocanthus Hatcher.

Dr. C. R. Eastman has very courteously called my attention to the fact that the generic name *Haplocanthus* recently proposed by me for a new Sauropod dinosaur from the Jurassic deposits near Canyon City, Colorado,* is essentially preoccupied, Agassiz having employed the name *Haplacanthus* for a genus of fishes. I would therefore propose the name *Haplocanthosaurus* for this genus of dinosaurs with simple median spines on the anterior dorsals and posterior cervicles.—*J. B. Hatcher.*

*Proc. Biol. Soc., Washington, XVI, pp. 1-2, February 21, 1903.

## Corrections to the nomenclature of the Eocene fossil corals of the United States.

Since the publication of my Eocene and Lower Oligocene coral faunas of the United States in 1900, as Monograph XXXIX of the U. S. Geological Survey, I find it necessary to make several changes in the names there used.

*Aldrichiella* nom. nov. for genus *Aldrichia* Vaughan (op. cit. p. 70). Professor T. D. A. Cockerell has called my attention to the fact that Coquilett applied this name in 1894* to a genus of Bombylid flies. Type species of *Aldrichiella, A. elegans* Vaughan.

*Endopachys* Lonsdale, 1845. My genus *Rhectopsammia* (op. cit. p. 183, pl. XXI, figs. 11–13) was based on the young of *Endopachys maclurei* (Lea), but I discovered my mistake after the publication of the Monograph. The genus *Endopachys* has been characterized as showing no evidence of attachment. My *Rhectopsammia* is the attached young of *Endopachys*. These young individuals often attain a height of 6 mm., then the upper portion of the corallum becomes separated from the pedicel. Indications of the detachment scar may frequently be seen quite late in the life of some specimens. Usually it is ultimately completely obliberated by the deposition of calcareous substance over it by the edge zone of the coral extending downward, enveloping the base.

It may be well to call attention to an apparent duplication of the name *Paracyathus granulosus*. On page 107, pl. VIII, figs. 15 to 15b, in my memoir already cited, I have described and figured a species from Woods Bluff, Alabama, under the name given above. Professor Verrill in the Rept. U. S. Fish Com., Pt. XI, in the Vol. for 1883, pub. 1885, p. 535. uses the name *Paracyathus granulosus*, but the name is not accompanied by any description. I have made a careful search for a published description of the species referred to, but have not been able to find any. I have written to Professor Verrill for information regarding the matter. He says that some *nomina nuda* escaped his attention in preparing the lists for the Fish Commission, although he endeavored to eliminate all of them. Therefore my name *Paracyathus granulosus* will stand, and when Professor Verrill publishes the description of his coral it will be necessary for him to give it another name.—*T. Wayland Vaughan.*

## Note on the generic name Hylophilus.

The presently accepted rules of nomenclature render necessary the rejection of the generic term *Hylophilus* for the group of Vireonidæ to which it has been commonly applied. This name *Hylophilus* (Temminck, Pl. Col., 1823, pl. 173, fig. 2) is preoccupied by *Hylophila* Hübner (Verz. Schmett., 1816, p. 396), used for a genus of Lepidoptera. The

*Trans. Amer. Entomolog. Soc., Vol. XXI, p. 93, 1894.

proper name for the avian genus is *Pachysylvia* Bonaparte (Consp. Avium I, 1850, p. 309); and the following species are current:

*Pachysylvia olivacea* (Tschudi), *Pachysylvia flavipes* (Lafresnaye), *Pachysylvia viridiflava* (Lawrence), *Pachysylvia pallidifrons* (Dalmas), *Pachysylvia acuticauda* (Lawrence), *Pachysylvia griseipes* (Richmond), *Pachysylvia brunnea* (Allen), *Pachysylvia semicinerea* (Sclater and Salvin), *Pachysylvia luteifrons* (Sclater), *Pachysylvia ferrugineifrons* (Sclater), *Pachysylvia rubrifrons* (Sclater and Salvin), *Pachysylvia ochraceiceps* (Sclater), *Pachysylvia brunneiceps* (Sclater), *Pachysylvia aurantiifrons* (Lawrence), *Pachysylvia fuscicapilla* (Sclater and Salvin), *Pachysylvia flaviventris* (Cabanis), *Pachysylvia semibrunnea* (Lafresnaye), *Pachysylvia flaveola* (Wied), *Pachysylvia amauroccphala* (Nordmann), *Pachysylvia pœcilotis* (Temminck), *Pachysylvia sclateri* (Salvin and Godman), *Pachysylvia muscicapina* (Sclater and Salvin), *Pachysylvia decurtata* (Bonaparte), *Pachysylvia pectoralis* (Sclater), *Pachysylvia thoracica thoracica* (Temminck), *Pachysylvia thoracica griseiventris* (Berlepsch and Hartert).—*Harry C. Oberholser.*

## The Short-leaved Sundew in Virginia.

During the second week of May, 1903, I found the short-leaved sundew common in a low moist field near the shore of Hampton Roads about three miles west of Hampton, Virginia. The situation was open, and rather less wet than those generally occupied by the more northern members of the genus, since the *Drosera* was closely associated with such plants as *Houstonia cœrulea* and *Potentilla canadensis* rather than with characteristic bog species. During the early hours of the day the plant was conspicuous on account of its large whitish flowers, exceeding in size those of either of its companions; but by noon the corollas closed, and the slender scapes and small rosettes of reddish leaves were not easily detected among the grass.

This record extends the northward range of *Drosera brevifolia* from southern North Carolina,* and adds another to the list of lower austral plants known to reach the region of the lower Chesapeake Bay.—*Gerrit S. Miller, Jr.*

*See Kearney, Contrib. U. S. Nat. Herb., X, p. 454, August 1, 1900.

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PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# A NEW LANDSHELL FROM CALIFORNIA.

BY PAUL BARTSCH.

[By permission of the Secretary of the Smithsonian Institution.]

Mrs. H. L. T. Walcott, of Dedham, Mass., during a recent visit to Palm Springs, San Diego County, California, collected a small lot of land shells which are believed to be an undescribed species of *Sonorella*. The shells are mostly dead and bleached, and were found in the crevices of rocks, filled with sand. A few individuals however still have part of the animal within them and it may be presumed that the color of these specimens is that of the living shell. This species may be known as:

**Sonorella walcottiana** sp. nov.

Shell moderately elevated, rather thin, polished, of light isabelline color, with a moderately broad dark chestnut band encircling the whorls somewhat posterior to the periphery. This band is bordered on each side by a narrow zone a trifle lighter than the general color of the shell and is usually almost completely covered in all the whorls except part of the penultimate and the last volution. Nuclear whorls one and one-

half, marked by many microscopic, subspirally arranged, elongate-oval papillae. Post-nuclear whorls four and one-half, well rounded, somewhat inflated, marked by fine irregular lines of growth and a few minute scattered papillae. Sutures very distinct. Last whorl strongly deflected, the summit falling halfway between the dark spiral band and the base of the columella; slightly constricted behind the fairly well developed and somewhat reflected peristome. Columella obliquely curved, much expanded and decidedly reflected at the base where it almost conceals the umbilicus. Aperture large, oblique, rounded.

The type, number 170,007, United States National Museum Collection, measures: maj. lat., 23.5; min. lat., 18.5; alt., 15.5; aperture, maj. lat., 14; min. lat., 12.7 mm.

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PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# DESCRIPTIONS OF NEW GENERA SPECIES AND SUBSPECIES OF AMERICAN BIRDS.

BY ROBERT RIDGWAY.

[By permission of the Secretary of the Smithsonian Institution.]

The following new forms are included in Part III of "Birds of North and Middle America,"* now mostly in print, the further printing and publication of which has been postponed until after June, 1904. In consequence of this long delay it is obviously desirable that these novelties be published in advance.

**Budytes flavus alascensis,** new subspecies.

Similar to *B. f. leucostriatus* but slightly smaller, especially the bill; coloration duller, the yellow of underparts paler and less pure, the chest more distinctly clouded or blotched with grayish, the olive-green of rump, etc., less pronounced.

Western Alaska.

Type, No. 73,231, Coll. U. S. Nat. Mus., adult male, St. Michael, Alaska, June 1, 1877; L. M. Turner.

*Bulletin of the U. S. National Museum, No. 50.

**Alopochelidon***, new genus.

Tail less than half as long as wing, slightly emarginate, all the rectrices broad and rounded at tip; wing-tip little if any longer than distance from bend of wing to end of longest secondaries; above dull grayish brown.

Similar to *Stelgidopteryx* but differing in less adhesion between toes (in this respect agreeing with *Pygochelidon*), and in entire absence of recurved tips to barbs of outer web of outermost primary.

Type, *Hirundo fucata* Temminck.

**Orochelidon†**, new genus.

Differing from *Atticora*, *Neochelidon* and *Notiochelidon* in having the subbasal phalanx of middle toe entirely free from the outer toe; from *Diplochelidon* in having the tail much less than two-thirds as long as wing, and forked for less than one-fourth its length (nearly even in one species), and nasal fossæ occupying at least basal half of maxilla.

Type, *Petrochelidon murina* Cassin (=*Hirundo cinerea* Gmelin?).

**Diplochelidon‡**, new genus.

Nearest *Orochelidon*, but differing in having the tail more than three-fourths as long as wing, forked for one-half its length, the lateral rectrices attenuate; nasal fossæ very small, occupying much less than basal half of maxilla.

Type, *Hirundo melanoleuca* Maximilian.

**Lamprochelidon‖**, new genus.

Nearest *Tachycineta* and *Callichelidon* but nasal operculum entirely feathered, the feathering of the frontal antiæ extending to the anterior end of the nasal fossæ and partly hiding nostrils.

Type, *Hirundo euchrysea* Gosse.

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*'Αλωπός, fox-like; χελιδών, a swallow.

†'Ορος, a mountain; χελιδών, a swallow.

‡Διπλόος, double; χελιδών, a swallow; with reference to its resemblance to swallows of two different types.

‖Λαμπρός, shining; χελιδών, a swallow.

**Stelgidopteryx salvini,** new species.

Similar to *S. serripennis* but pileum distinctly darker than back, tertials conspicuously margined with white (except in worn plumage), and chin and upper throat pale cinnamon or cinnamon-buff.

Southwestern Mexico (State of Jalisco) to Chiriqui.

Type, No. 30,716, Coll. U. S. Nat. Mus., adult male, Dueñas, Guatemala, October 17, 1859; O. Salvin.

**Vireosylva gilva brewsteri,** new subspecies.

Similar to *V. g. swainsonii* but larger (adult male averaging: wing, 73; tail, 52.5; exposed culmen, 11.2; adult female, wing, 71.7; tail, 50.3; exposed culmen, 10.8 mm.).

Mountains of Chihuahua, northwestern Mexico.

Type, No. 21,811, Coll. William Brewster, adult male, Bravo, Chihuahua, July 24, 1888; M. Abbott Frazar.

**Vireosylva josephæ costaricensis,** new subspecies.

Similar to *V. j. josephæ* but pileum paler sooty, wing shorter and tail longer.

Highlands of Costa Rica.

Type, No. 41,269, Coll. U. S. Nat. Mus., San José, Costa Rica; J. Carmiol.

**Vireo huttoni cognatus,** new subspecies.

Similar to *V. h. stephensi* but underparts without yellowish tinge, the chest not shaded with olive-buff; rump and upper tail-coverts less strongly olive-green.

Cape district of Lower California.

Type, No. 15,527, Coll. William Brewster, adult male, Sierra de la Laguna, Lower California, May 5, 1887; M. Abbott Frazar.

**Vireo huttoni mexicanus,** new subspecies.

Similar in coloration to *V. h. huttoni* but size decidedly larger (adult male averaging: wing, 67.3; tail, 51.9; adult female, wing, 65.4; tail, 51.2 mm.).

Southern portion of Mexican plateau to highlands of Guatemala.

Type, No. 143,442, Coll. U. S. Nat. Mus. (Biological Survey Collection), adult male, Mt. Orizaba, Puebla, April 26, 1893; E. W. Nelson.

**Vireo bellii arizonæ,** new subspecies.

Similar to *V. b. pusillus* but more strongly tinged with olive above, the sides and flanks more strongly tinged with yellowish olive. (Intermediate between *V. b. pusillus* and *V. b. medius*, and bearing to the former the same relation that *V. b. bellii* does to the latter.)

Extreme western portion of Texas to Arizona, and southward into northwestern Mexico.

Type, No. 98,790, Coll. U. S. Nat. Mus., adult male, Tucson, Arizona, March 21, 1884; E. W. Nelson.

**Pachysylvia ochraceiceps pallidipectus,** new subspecies.

Similar to *P. o. ochraceiceps* but chest pale buffy olive instead of light ochraceous-brown.

Southern Honduras to Chiriqui.

Type, No. 47,396, Coll. U. S. Nat. Mus., adult male, Angostura, Costa Rica, July 8, 1867; J. Carmiol.

**Vireolanius pulchellus viridiceps,** new subspecies.

Similar to *V. p. verticalis* but entire pileum, together with upper part of hindneck, green.

Veragua to Panama Railway.

Type, No. 40,148, Coll. Am. Mus. Nat. Hist., adult female, Panama; J. McLeannan.

**Lanius ludovicianus mearnsi,** new subspecies.

Similar to *L. l. mexicanus* but smaller, with larger bill.

San Clemente Island, Santa Barbara group, California; Santa Margarita Island, Lower California.

Type, No. 134,781, Coll. U. S. Nat. Mus., adult female, San Clemente Island, California, August 27, 1894; Dr. Edgar A. Mearns, U. S. A.

**Aphelocoma unicolor cœlestis,** new subspecies.

Similar to *A. u. unicolor* but larger and the blue color decidedly lighter (cerulean instead of cobalt).

Highlands of Guatemala and Chiapas.

Type, No. 144,685, Coll. U. S. Nat. Mus. (Biological Survey Collection), adult male, San Cristobal, Chiapas, September 24, 1895; Nelson and Goldman.

**Bæolophus inornatus restrictus,** new subspecies.

Similar to *B. i. inornatus* but darker, especially the underparts, the young conspicuously less brownish.

Vicinity of San Francisco Bay, California.

Type, No. 163,569, Coll. U. S. Nat. Mus., adult male, Oakland, California, March 24, 1896; Dr. J. Hornung.

**Bæolophus inornatus murinus,** new subspecies.

Similar to *B. i. inornatus* but larger, upperparts much grayer, underparts darker and grayer; similar to *B. i. griseus* but decidedly darker.

Southern California, in Los Angeles, San Bernardino, and San Diego counties; northern Lower California.

Type, No. 133,812, Coll. U. S. Nat. Mus., adult male, Nachoguero Valley, Lower California, June 4, 1894; Dr. Edgar A. Mearns, U. S. A.

**Psaltriparus minimus saturatus,** new subspecies.

Similar to *P. m. minimus* but darker in corresponding plumages; young with color of pileum duller, more grayish sooty.

Vicinity of Puget Sound.

Type, No. 136,372, Coll. U. S. Nat. Mus. (Biological Survey Collection), Mount Vernon, Washington, December 11, 1895; C. P. Streator.

**Chamæa fasciata rufula,** new subspecies.

Similar to *C. f. phæa* but paler; the back clearer sepia brown, the underparts lighter vinaceous-cinnamon.

Central coast district of California, in Marin, San Francisco, and Santa Clara counties.

Type, No. 82,620, Coll. U. S. Nat. Mus., Nicasio, Marin County, California, December 8, 1876; C. A. Allen.

**Polioptila nelsoni,** new species.

Similar to *P. cærulea mexicana* but adult male with forehead and crown (within the U-shaped black mark) blackish slate, distinctly glossed

with greenish blue; adult female similar to that of *P. c. cæsiogaster* but upperparts duller slate-gray and underparts white medially.

Southeastern Mexico (States of Oaxaca and Chiapas).

Type, No. 142,695, Coll. U. S. Nat. Mus. (Biological Survey Collection), adult male, Oaxaca City, Oaxaca, June 21, 1894; Nelson and Goldman.

**Polioptila bairdi,** new species.

Similar to *P. albiloris* but smaller, and with lores not entirely white, but crossed with a black line (in adult male) from rictus to anterior angle of eye.

Western Nicaragua and Costa Rica.

Type, No. 89,693, Coll. U. S. Nat. Mus., adult male, San Juan del Sur, Nicaragua, January 6, 1883; C. C. Nutting.

**Polioptila superciliaris magna,** new subspecies.

Similar to *P. s. superciliaris* but decidedly larger (except length of tarsus), the wing much longer; coloration darker, the pileum, in adult female (adult male not seen!) nearly slate-black, the underparts pale gray (between french gray and cinereous), only the abdomen, hinder flanks, anal region and under tail-coverts being white.

Adult female.—Wing, 47.5; tail, 43; exposed culmen, 12.5 mm.

Highlands of central Costa Rica.

Type, No. 189,563, Coll. U. S. Nat. Mus., adult female, Cartago, Costa Rica, April, 1886; J. J. Cooper.

**Telmatodytes palustris iliacus,** new subspecies.

Similar to *T. p. palustris* but paler and much more refescent, the flanks and anal region conspicuously tawny buff or buffy cinnamon.

Mississippi Valley and Great Plains region, north to Alberta, east to Indiana, south in migration over greater part of Mexico (except northwestern portion) and along Gulf coast to western Florida, occasionally to middle and southern Atlantic coast.

Type, No. 90,199, Coll. U. S. Nat. Mus., adult male, Wheatland, Knox County, Indiana, April 30, 1883; R. Ridgway.

This form equals *T. p. dissæptus* Bangs *in part;* but the type of the latter, now before me, is from Wayland, Massachusetts, and, together with a large series from the same portion of the country, seems to me inseparable from *T. p. palustris.*

**Heleodytes nelsoni,** new species.

=*Campylorhynchus megalopterus* and *C. pallescens* of authors, not of Lafresnaye.

Similar to *H. megalopterus* (Lafresnaye)* but smaller, paler, and more brownish; bands on back dull brownish white or pale brownish buff; spots on underparts grayish brown instead of blackish.

Southeastern portion of Mexican plateau.

Type, No. 13,659, Coll. U. S. Nat. Mus., Jalapa, Vera Cruz, J. Montes de Oca.

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*=*H. alticola* Nelson, which Mr. Nelson was misled into naming as new through an error of mine in identifying Lafresnaye's type.

VOL. XVI, PP. 113-116 SEPTEMBER 30, 1903

PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# THE NORTH AMERICAN FORMS OF ASTRAGALINUS PSALTRIA (SAY).

BY HARRY C. OBERHOLSER.

Six geographical races of *Astragalinus psaltria* (Say) were recognized by Mr. Ridgway in his recent treatment of the genus*, as follows:

*Astragalinus psaltria psaltria* (Say).—Lower California and southwestern United States from Texas and Colorado to California.

*Astragalinus psaltria arizonæ* (Coues).—Northwestern Mexico and southwestern border of the United States from Texas to California, north to Colorado.

*Astragalinus psaltria mexicanus* (Swainson).—Mexico, except extreme southern and northwestern portions; north to Texas, New Mexico and Colorado.

*Astragalinus psaltria croceus* (Jouy).—Southern Mexico to Panama, casually to Colombia and Ecuador.

*Astragalinus psaltria jouyi* (Ridgway).—Yucatan.

*Astragalinus psaltria columbianus* (Lafresnaye).—Costa Rica to Venezuela and Peru.

*Birds of North and Middle Amer., I, 1901, pp. 114–121.

With the last three we have no present concern, but the others will bear further elucidation. In the first place, the status of *Astragalinus p. arizonæ*, as currently accepted, has been very properly challenged by Mr. Brewster* and Mr. Grinnell†, as well as by Mr. Ridgway‡. Furthermore, the occurrence of all three forms—*psaltria*, *arizonæ* and *mexicanus*—in Colorado during the breeding season is alone sufficient to arouse suspicion.

The type locality of *psaltria* is the Arkansas River, near 105° west longitude (between Pueblo and Cañon City), Colorado§; and a series of summer males from Colorado Springs, Colorado, which for purposes of comparison may be considered practical topotypes, exhibits all gradations from the green-backed to the black-backed forms, representing thus *psaltria*, *arizonæ*, and *mexicanus*—all breeding at the same place! These differences are, however, in this case, quite certainly the result of age; and this conclusion is fortified by the occurrence of similar variations well within the range of the so-called black-backed form *mexicanus*,‖ in Texas, New Mexico, and even Mexico. Males breed in the green-backed plumage which probably is the condition of the first year; and one or two, possibly three, more seasons are required to complete the fully adult black dress. Say's *psaltria* was based on one of these immature green-backed specimens which are indistinguishable from individuals of the constantly green-backed form found in California; but notwithstanding this, the name must be used for the black-backed Colorado bird. Fully adult individuals from this latter state, that is, those with the black upper surface, seem, however, not to be proportionately so common, at least in collections, as the similar plumage of the Mexican bird, and moreover, have usually some slight mixture of olive green on the upper parts, though by far the greater number of Mexican birds have a similar trace of olive; but both these apparent differences may be due either to fortuitous selection in collecting specimens—as, for instance, appears to be the case with adult males of *Sporophila*

*Bull. Mus. Comp. Zool., XLI, 1902, p. 136.

†Condor, 1902, pp. 115–116.

‡Birds of North and Middle Amer., I, 1901, p. 116.

§Say, Long's Exped. Rocky Mts., II, 1823, p. 40.

‖Swainson, Philos. Mag., N. S., I, 1827, p. 435 (Real del Monte, Hidalgo, Mexico).

*morelleti* from the Lower Rio Grande—or to a tendency toward intergradation with the green-backed form found farther to the westward. Moreover, there seem to be no other characters to separate the birds of Colorado (*psaltria*) from those of Mexico (*mexicanus*). From these facts it therefore is apparent that *Astragalinus p. mexicanus* is the same as *Astragalinus p. psaltria.*

The name *arizonæ** was based on New Mexico birds in the parti-colored immature plumage, and is undoubtedly a synonym of *psaltria.* The type (No. 37,091, U. S. Nat. Mus.) came from near Fort Wingate, New Mexico; and another specimen taken at the same time (June 28) is almost pure black above. In treating this form, Mr. Ridgway curiously enough overlooked the type and the two other specimens taken simultaneously by Dr. Coues, stating that none of these were in the collection of the United States National Museum†. New Mexico, with the exception of its extreme southwestern corner, seems to be inhabited solely by the black-backed bird *psaltria.*

All adult males from Lower California, California, Nevada, Arizona, together with those we have seen from Utah have the back olive green, apparently never assuming the black plumage of true *psaltria;* and rarely have even a mixture of black in the back or auriculars, such individuals indicating probably, as Mr. Brewster suggests, merely an aberrant tendency of this green-backed form. True intermediates doubtless do occur, however, in northwestern Mexico.

From what has been said in the foregoing paragraphs it may be premised that there are but two forms of *Astragalinus psaltria* in North America north of southern Mexico, and that one of these is unnamed. They may be distinguished as follows:

**Astragalinus psaltria psaltria** (Say).

*Fringilla psaltria* Say, Long's Exped. Rocky Mts., II, 1823, p. 40.
*Carduelis mexicana* Swainson, Philos. Mag., N. S., I, 1827, p. 435.
*Fringilla melanoxantha* Lichtenstein, Preis-Verz. Mex. Vög., 1830, p. 2.
*Fringilla texensis* Giraud, Sixteen Species North Amer. Birds, 1841, pl. 5, fig. 1.

*Coues, Proc. Acad. Nat. Sci. Phila., 1866, pp. 82, 83.
†Birds of North and Middle Amer., I, 1901, p. 116, footnote.

*Chrysomitris (Pseudomitris) mexicanus* var. *arizonæ* Coues, Proc. Acad. Nat. Sci. Phila., 1866, pp. 82, 83.

*Subspecific characters.*—Upper parts, including wings and tail, black, the wings with broad white edgings, the tail with most of its feathers extensively white basally; entire under surface yellow.

*Geographic distribution.*—Mexico, excepting the northwestern and extreme southern portions; Texas, New Mexico, and Colorado.

### Astragalinus psaltria hesperophilus, subsp. nov.

*Astragalinus psaltria* Auct., *nec* Say.

*Subspecific characters.*—Similar to *Astragalinus psaltria psaltria*, but ear-coverts, sides of neck, with back, nape, and rump, in fully adult plumage, olive green instead of black.

*Geographic distribution.*—Southwestern United States and northwestern Mexico, from California and Lower California to Utah, Arizona, and extreme southwestern New Mexico.

*Description.*—Type, adult male, No. 139,153, U. S. National Museum (Biological Survey Collection); San Bernardino, California, December 28, 1890; Dr. A. K. Fisher. Pileum, and upper tail-coverts black, the latter with olive green edgings; remainder of upper parts olive green with narrow dusky or blackish shaft streaks; tail black, the inner webs of the three outer pairs of rectrices largely white, and all the feathers narrowly margined externally with pale grayish; wings black, with a large white speculum at the base of the primaries, the tertials broadly bordered with white, the other quills narrowly edged with grayish and olivaceous; lesser and median wing-coverts edged with olive green; greater coverts broadly margined with greenish white; sides of head and neck olive green; entire under surface deep primrose yellow, paler on the crissum, whitish on the abdomen, and shaded with olivaceous on sides and flanks; lining of wing mixed gray, white, and black. Length of wing, 65.5; tail, 43; exposed culmen, 9; tarsus, 15; middle toe, 10 mm.

VOL. XVI, PP. 117-118 SEPTEMBER 30, 1903

PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# A NEW SPECIES OF HABENARIA FROM CUBA.

BY OAKES AMES.

This species is closely allied to *Habenaria odontopetala*, Rchb. f. (Fig. 2.) of peninsular Florida, Mexico, Central America and Cuba. It grows in rich hillside woodlands, usually where there is considerable shade, flowering during the winter months. On November 9, 1902, I discovered a single specimen in bloom in the Province of Pinar del Rio, near Cayajabos, a town which was destroyed in the Cuban war; and on a second expedition to the same locality made in January, 1903, with Robert G. Leavitt, I found numerous plants, both in flower and in fruit. *Habenaria odontopetala* was common here though its season of bloom was practically at a close. However, many flowers were still in good condition, and made possible a careful comparative study of both species in the field.

**Habenaria Sanbornii,** sp. nov. (Fig. 1).

Plants 2–8 dm. tall: roots fleshy, tubers short, elliptical or nearly so: leaves six to eight, quite rigid, dull gray-green, never glossy above, 5–20 cm. long, 2–3 cm. wide, lanceolate to narrowly elliptical, lower ones often obtuse, upper ones acute: cauline bracts lanceolate to lance-ovate, acuminate, acute: floral bracts similar, lower ones longer than the

ovaries; racemes 6–30 cm. long, loosely or densely flowered, flowers few or many (twelve to sixty), pedicels short, nearly erect; lateral sepals greenish, strongly deflexed, falcate, spreading, elliptic-oblong, mostly 3-nerved, 7 mm. long; upper sepal similar in color, nearly orbicular, 3-nerved, 4 mm. long; petals 4 mm. long, greenish-yellow, oblong, somewhat quadrangular, the angles obtuse, rounded, at the summit of each petal the main nerve terminates in an abrupt denticle, anterior basal angle slightly protuberant; lip 5 mm. long, yellowish, oblong-linear, pointed, quite straight, deflexed, margin rather revolute, base on either side obscurely obtuse angled, otherwise the lip is entire and regular; spur 10–12 mm. long, slender, straight; stigmatic glands somewhat globular; ovary 11–12 mm. long, cylindrical, tapering to both ends.

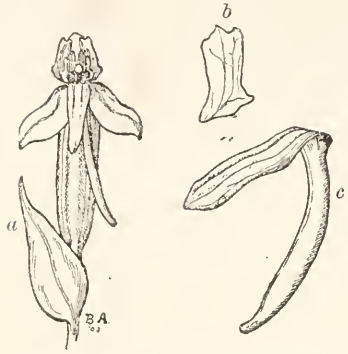


FIG. 1. *Habenaria Sanbornii* Ames (*a* x 1½, *b* and *c* x 3).

Cuba: In vicinity of Cayajabos, Pinar del Rio. *Type* in Author's Herbarium, No. 519. January 29, 1903 (Leavitt and Ames).

*Habenaria Sanbornii*, does not appear in Wright's collections of Cuban plants so far as I have been able to ascertain, and up to this time I have not succeeded in identifying my material with any species of *Habenaria* hitherto described. Typical specimens have been placed in the Gray Herbarium of Harvard University.

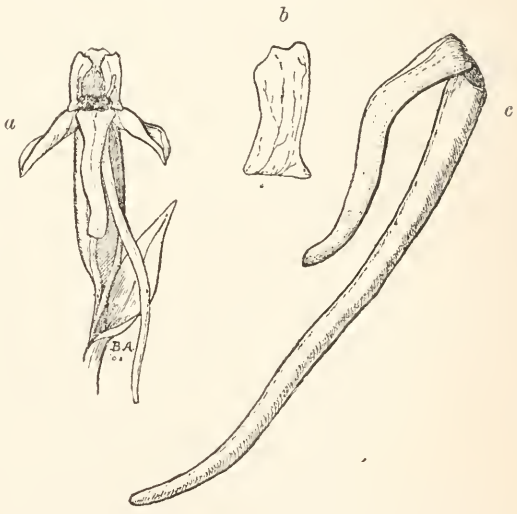


FIG. 2. *Habenaria odontopetala* Rchb. (*a* x 1½, *b* and *c* x 3).

The name of Edwin L. Sanborn, Jr., through whose kindness and hospitality I was enabled to make a considerable collection and study of Cuban orchids, is associated with this species.

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PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# A NEW NATALINE BAT FROM THE BAHAMAS.

BY GERRIT S. MILLER, JR.

[By permission of the Secretary of the Smithsonian Institution.]

While accompanying the Bahama Expedition of the Geographical Society of Baltimore, Mr. J. H. Riley obtained four specimens of a nataline bat easily distinguishable from the species hitherto known. They were taken in a cave near Sandy Point, at the southwest corner of Watlings Island. The animal may be known as:

**Chilonatalus tumidifrons**, sp. nov.

*Type.*—Adult male (in alcohol) No. 122,024 United States National Museum. Collected on Watlings Island, Bahamas, July 12, 1903, by J. H. Riley. Original number 157.

*Characters.*—Not as small as *Chilonatalus micropus* and *C. brevimanus*, but forearm of about the same length as in the related species. Frontal gland extending from middle of forehead nearly to end of muzzle, and rising 5 mm. above level of eye. Skull and teeth essentially as in *Chilonatalus micropus*, but less diminutive in size.

*External form.*—Except for the slight difference in size, the external appearance of *Chilonatalus tumidifrons* is closely similar to that of *C. micropus*. The forearm, however, is relatively shorter, and the ears are more evenly rounded off above. Lips and muzzle as in the related spe-

cies, except that projection above nostrils is narrower. Penis less than half as long as foot, and readily concealed by surrounding fur. Membranes in no way peculiar. Frontal gland at least four times as large as in *Chilonatalus micropus*, much longer and higher than wide. It extends from a point on forehead nearly level with middle of proencephalon to within 3 mm. of nostril, a distance of about 8 mm. Its greatest width is 3.8 mm.; and its height, measured from corner of eye is a little over 5 mm. Its surface is finely rugose, and naked except for a sprinkling of minute hairs.

*Color.*—The fur is everywhere cream-buff, that of the belly clear and unmixed with brown, that of the back clouded with broccoli-brown. Ears light yellowish brown, darkening at edges. Membranes dark brown.

*Skull and teeth.*—Except for their greater size the skull and teeth do not differ appreciably from those of *Chilonatalus micropus*.

*Measurements.*—Type: total length, 87; head and body, 40; tail, 47; tibia, 18; foot, 7; forearm, 32; first digit, 5; second digit, 34; third digit, 65; fourth digit, 48; fifth digit, 49; ear from meatus, 14; ear from crown, 11; width of ear, 16; skull, greatest length, 15.8; basal length, 14; basilar length, 13; zygomatic breadth, 7.4; greatest breadth of braincase, 6.6; mandible, 11.4; maxillary toothrow exclusive of incisors (alveoli), 6.8; mandibular toothrow exclusive of incisors (alveoli), 7.

*Specimens examined.*—Four (two skins), all from the type locality.

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PROCEEDINGS

OF THE

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# A NEW PIGMY SQUIRREL FROM CENTRAL AMERICA.

BY E. W. NELSON.

Although several squirrels belonging to the subgenus *Microsciurus* have been described they have all been based upon a very limited number of specimens. The rarity of these animals in recent collections from the region in which they occur makes it appear that they are either rare or extremely shy. Collectors visiting Central or northern South America should make special effort to obtain small squirrels, since the few specimens of *Microsciurus* already in existence show an unexpectedly large number of species with apparently rather restricted ranges. I am indebted to the generosity of Mr. Oldfield Thomas, Curator of Mammals of the British Museum, for the opportunity to describe the following species.

**Sciurus (Microsciurus) boquetensis,** sp. nov.

Chiriqui Pigmy Squirrel.

*Type.*—Adult female, No. 3.3.3.38, British Museum. Collected at Boquete (alt. 6000 ft.), Chiriqui, Panama, May 7, 1903, by H. J. Watson. Original number 93.

*Distribution.*—Known only from type locality.

*Specific characters.*—Pelage soft, thick and woolly; tail slender, flattened: upperparts olive brown: breast rusty rufous; rest of underparts mainly grizzled bistre brown; tops of feet and toes washed with rusty. Size about that of *S. alfari.*

*Color.*—Upperparts including sides of body and upper surface of legs uniform olivaceous brown with a dull yellowish shade; sides of head and neck slightly paler and more yellowish; tops of feet and toes washed with rusty reddish; tail dull tawny olive finely washed and tipped with black and thinly edged with pale yellowish tips of hairs; chin and throat dingy rusty; underside of neck and breast rusty rufous shading back into dull grizzled brown; underside of tail dull tawny olive narrowly bordered with black and thinly edged with pale yellowish tips of hairs.

*Measurements.*—Measurements of type from dried skin: total length, 257; tail vertebræ, 116; hind foot, 37.

*Cranial characters.*—Premolars $\frac{2}{1}$. Skull longer and proportionately narrower than in *S. isthmius*; this character specially marked in rostrum; interorbital width narrower; brain-case narrower and more highly arched, lower jaw heavier with angle stronger and more broadly expanded; molar series longer and heavier. The skull of type measures: palatal length, 15.5; interorbital breadth, 14; length of upper molar series, 7.

*Specimens examined.*—One; from type locality.

*General notes.*—The soft thick pelage of this species indicates that it is a resident of a comparatively cool and probably humid climate.

The measurements of the apparently slightly over-stuffed type show that it is about the same size as *S. alfari.* It may be at once distinguished from *S. isthmius*, *S. alfari*, and *S. similis* by the rather pale, almost grayish, olivaceous color of upperparts, which entirely lack the warm reddish brown suffusion characteristic, in varying degree, of the three species named.

VOL. XVI, PP. 123-124 SEPTEMBER 30, 1903

PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# A NEW HOGNOSE SNAKE FROM FLORIDA.

BY LEONHARD STEJNEGER.

[By permission of the Secretary of the Smithsonian Institution.]

Mr. E. J. Brown collected in 1901, near Lemon City, two hognose snakes lacking the azygos shield between the internasals. Fearing that they might be freaks only, I waited until the receipt of a young specimen in all essential features like the others. I propose to name this new form after its discoverer:

**Heterodon browni,** new species.

*Diagnosis.*—Maxillary teeth, 8 + ?; no azygos shield between internasals or prefrontals; rostral narrower than distance between eyes; scale rows, 25; ventrals, 114–127; anal divided; subcaudals, 47–53 pairs.

*Habitat.*—Southern Florida.

*Type.*—Immature female, No. 32,089 United States National Museum; Lemon City, Florida; E. J. Brown, collector.

*Description.—Adult male*: U. S. Nat. Mus. No. 31,926; Lemon City, Florida; E. J. Brown, collector. Rostral slightly recurved, the underside much wider than high, the upper portion about equalling its distance from frontal, the posterior projection less than half the suture between the internasals; rostral keel sharp; internasals broadly in contact, with no azygos shield between them, their mutual suture longer than that between the prefrontals; prefrontals undivided, large, in contact with each other, with frontal, supraoculars, upper preorbital, loreal and posterior nasals; frontal one and one-half times as long as broad, as long as parietals; nostril in suture between two nasals, opening backwards, the pos-

terior nasal being hollowed out as is also the loreal though to a less extent, the two nasals and the loreal subequal in size: eye large, its horizontal diameter as long as its distance from anterior nasal, the vertical diameter greater than its distance from the edge of the lips: eye surrounded by a ring of 10 (or 11 on one side) shields including the supraoculars: temporals 2 + 3: 8 supralabials, sixth and seventh largest: mental very small: 9 lower labials, first pair large, broadly in contact behind mental, first, second and third in contact with chin-shield: only one pair of large chin-shields, in contact behind with four scale-like shields, the outer pair of which, which represent the posterior chin-shields, scarcely more developed than the others: 25 rows of scales around the middle of the body, 19 rows a head-length anterior to the vent, outer row smooth, the next very feebly carinated, the keeles increasing in distinctness towards the back: 114 ventrals: anal divided: 52 pairs of subcaudals. Color above sepia brown darker on the median line becoming paler on the sides, the back with 15 whitish cross-bands which widen on the sides where they enclose a roundish brownish-black spot: tail with nine whitish cross-bands without lateral spots: head with a brownish-black band across the prefrontals, with an anterior projection on the suture between the internasals, this prefrontal band extending obliquely backwards through the eyes to the angle of the mouth: a similar band running parallel with it from the parietals to the sides of the neck joining a large oblong blackish patch on each side of the neck: between these, on the nape, an elongate median blackish spot; a brownish black symmetrical figure of irregular outline on fronto-supraocular-parietal suture: a pale irregular band spotted with dusky across middle of frontal and supraoculars: underside clouded with brownish gray, leaving the middle of the ventrals more or less uniform pale.

*Dimensions.*—Total length, 398 mm.; tail, 88 mm.

The young specimen (U. S. N. M. No. 32089), apart from slight deviations in the scale formula, which may be seen in the subjoined table, agrees completely with the two large specimens. Its ground color is less brownish, inclining as it does to purplish gray, and there is an additional lateral row of irregular blackish spots below the ocelli of the dorso-lateral cross-bands.

**Scale formula.**

| U. S. N. M. No. | Sex and age. | Locality. | Scale rows | Ventrals | Anal | Subcaudals | Supralabials | Oculars | Temporals |
|---|---|---|---|---|---|---|---|---|---|
| 30925 | ♂ ad. | Lemon City, Fla. | 25 | 117 | 2 | 53 | 8 | 10 | 2 + 3 |
| 30926 | ♂ ad. | Lemon City, Fla. | 25 | 114 | 2 | 52 | 8 | 10 (11) | 2 + 3 |
| 32089 | ♀ juv. | Lemon City, Fla. | 25 | 127 | 2 | 47 | 8 | 10 (11) | 3 + 3 (4) |

VOL. XVI, PP. 125-128 SEPTEMBER 30, 1903

PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# GENERAL NOTES.

## Earliest name for the American Crow.

*Corvus americanus*, in general use for the American Crow, dates from Audubon, 1834 (Orn. Biogr., II, p. 317), but C. L. Brehm fully described and named the species in 1822 (Beiträge zur Vögelkunde, II, 1822, p. 56), as *Corvus brachyrhynchos*. As there can be no question about the applicability of Brehm's name, it will become necessary to adopt it for the Common Crow. One subspecies will be affected by this change, viz: *Corvus brachyrhynchos pascuus* (Coues).—*Charles W. Richmond.*

## Relationships of the Madagascar genus Hypositta Newton.*

The genus *Hypositta* has by common practice been placed in the family *Sittidæ*, but possesses so many pronounced and unique structural characters that I believe it to be entitled to rank as a distinct family, which may be characterized (in part) as follows:

HYPOSITTIDÆ, new family.

Small ten-primaried acutiplantar Oscines, related to *Sittidæ*, but with maxilla uncinate at tip, its tomia distinctly notched subterminally; hallux (without claw) nearly as long as middle toe (without claw); outer toe very nearly as long as middle toe, and united to the latter for the whole of its basal and half its subbasal phalanges; inner toe only about half as long as outer; acrotarsium booted; tail three-fourths as long as wing.—*Robert Ridgway.*

*By permission of the Secretary of the Smithsonian Institution.

## Note on Sciurus mollipilosus Audubon and Bachman.

In a recent note entitled 'The proper name of the Redwood Chickaree', published in these Proceedings (Vol. XVI, pp. 99, 100, June 25, 1903), Mr. Bangs objects to my identification of *Sciurus mollipilosus* Aud. and Bach. with his later described *Sciurus hudsonicus orarius*, which he now says "should be known as *Sciurus* (*Tamiasciurus*) *douglasi orarius* (Bangs)." His objection seems to be mainly that when the original authors of the name said: "This species was secured in Upper California, near the Pacific Ocean," and, "Our specimens were obtained in the northern part of California, near the Pacific Ocean," they did not really mean California at all but, "merely northwest coast of America, and is analogous to 'that part of California that adjoins Mexico' of the same authors." As to this 'analogous' expression, it originated with Bennett in 1833 (P. Z. S., 1833, p. 39), and, correctly quoted is: "that part of California which adjoins to Mexico," and is not in any sense Audubon and Bachman's. As "the northern part of California, near the Pacific Ocean" was at the time Audubon and Bachman wrote an unsettled wilderness belonging to Mexico, they could hardly have more definitely indicated the home of the Redwood Chickaree than by the phraseology they employed.

The coloration, as indicated by their figure, can be given little weight, when we recall the extravagant and unnatural tints that disfigure so large a part of their illustrations in the work to which reference is made, but the mention of white-tipped hairs in the tail, and lower parts "lightly tinged in some places with rufous" will apply very well to winter specimens I have seen of Mr. Bangs's *orarius*,—far better than to any other known form of the subgenus *Tamiasciurus*.

Mr. Bangs says that the only ground I gave "for using the name [*mollipilosus*] to supplant my [his] *S. orarius*" was the supposed origin of the specimens. As a matter of fact, the case seemed so clear to me that no argument or discussion of the matter appeared necessary. Nor is my opinion changed by Mr. Bangs's presentation of the case.

It will be noticed that Mr. Bangs now considers that *S. mollipilosus* belongs to the *hudsonicus* group and not to the *douglasii* group, and is of the opinion that it should be referred to either *S. h. vancouverensis* or *S. h. streatori*, both from British Columbia. Baird, however, in 1857, said: "I have no doubt that the *Sciurus mollipilosus* of Audubon and Bachman is the same animal in the cinereous pelage ascribed to the above species [*S. douglasii*] * * * From the remark that the cinereous of the underparts is in some places lightly tinged with rufous, I infer that the specimen described of *S. mollipilosus* was in a transition state between the summer and winter pelage" (Mamm. N. Amer., 1857, p. 277).

Mr. Bangs is, therefore, the first to question the correctness of the alleged locality.—*J. A. Allen.*

## The Nodding Pogonia in the vicinity of Washington.

In August, 1903, while examining the woodland near the alluvial bottoms on the north side of Plummer's Island, I came unexpectedly upon several clumps of the Nodding Pogonia, *Triphora trianthophora* (Sw.) Rydberg. This orchid is credited with a range extending from Vermont to Florida, and westward to Wisconsin and Kansas, but it is everywhere rare and local except in certain portions of the Alleghenies. Certainly its discovery at this point furnishes another important addition to the flora of Washington and vicinity. Plummer's Island, in the Potomac, is located about nine miles from Washington, and belongs geographically to Montgomery County, Maryland. The central portion is high, rocky, and well timbered, the soil being a fine leaf mold. The basal portions, on the other hand, are level and often flooded when the river is at its higher stages.

This orchid has been very generally placed in *Pogonia* by modern authorities. In Britton's Manual, however, the genus *Triphora*, which Nuttall established for it, is restored. In the field the plant is certainly conspicuously different in appearance from other Pogonias. This is due mainly to the axillary inflorescence. The only other character of importance on which *Triphora* is based is the absence of a crest on the lip of the corolla.—*Charles L. Pollard.*

## A new Violet from Kentucky.

Viola Priceana n. sp.—Acaulescent, erect, about 1.3 dm. high, from an oblique rootstock; leaves succulent, glabrous, rather dark green, cordate-ovate in outline, somewhat cucullate, the apex abtuse, the margin regularly crenate; scapes equalling or surpassing the foliage; flowers very large (3 cm. broad) pale lilac, shaded with purple near the base of the petals and conspicuously purple-veined; lateral petals copiously bearded with white hairs; petals broadly oblong or nearly orbicular, the keel petal narrower and deeply channeled, the spur large and blunt; cleistogamous flowers on horizontal or slightly ascending peduncles.

In rich soil, various stations around Bowling Green, Kentucky. The description is drawn from a clump of plants in my garden, sent to me in May, 1901, by Miss Sadie F. Price; these flowered rather sparsely in April, 1902, but more freely in 1903, and were conspicuous when in bloom on account of the contrast between the purple margins and pale ground color of the corolla. Miss Price reported it as very constant in its characters, and as easily distinguishable from other violets with which it grew.

A herbarium specimen taken from these living plants and deposited in the United States National Herbarium, is the type. I take pleasure in naming the species in honor of the lady whose recent decease has deprived us of a valuable field worker and intelligent collaborator.—*Charles L. Pollard.*

### Scolecophagus preoccupied.

*Scolecophagus* Swainson, 1831, commonly used for a genus of North American birds, is preoccupied by *Scolecophagus* Geoffroy, 1795. For the genus of birds known as *Scolecophagus* the term *Euphagus* may be employed. The latter was used by Cassin in 1866 (Proc. Acad. Nat. Sci. Phila., 1866, p. 413) for *Psarocolius cyanocephalus* Wagler. The two species will thus stand as: *Euphagus carolinus* (Müller), and *Euphagus cyanocephalus* (Wagler).—*Charles W. Richmond.*

### On the name Eniconetta.

*Polysticta* Eyton, 1836, as the generic name for Steller's Duck, has long since been rejected in favor of *Eniconetta* Gray, 1840, because of an alleged earlier *Polysticte* Smith, 1836 (sometimes erroneously quoted "1835"). It can be said, however, that Eyton's *Polysticta* was published in April, 1836 (Catal. Brit. Birds, p. 58), while Smith's *Polysticte* appeared not earlier than June (Smith consistently quotes it "June, 1836" in his Illustrations of South African Zoology), and possibly even later. Smith did not return from his expedition into the interior of South Africa until the middle of March, 1836, after which he prepared his "Report of the Expedition for Exploring Central Africa," published at Cape Town. The date cited by Smith may mean that of the completion of his MS. In any event Eyton's name *Polysticta* is prior to *Polysticte* Smith, and should be used for *Anas stelleri* Pallas.—*Charles W. Richmond.*

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PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# A NEW SPECIES OF LARGE IGUANA FROM THE BAHAMA ISLANDS.

BY LEONHARD STEJNEGER.

[By permission of the Secretary of the Smithsonian Institution.]

Mr. J. H. Riley, of the United States National Museum, while attached to the Bahama Expedition of the Baltimore Geographical Society, during the summer of 1903, collected a good series of a large iguana belonging to the genus *Cyclura* on Watlings Island. He also secured a fine specimen of *Cyclura bæolopha* Cope on Andros Island, the type locality of this well-defined species. Two specimens collected by Mr. William Palmer in 1900 on the Isle of Pines, which I have regarded as typical of *Cyclura cyclura*, have furnished material for comparison, with the result that the Watlings Island specimens are here described as a new species. It will be noted that a large iguana from Cat Island has been recorded under the name of the Cuban species (Cope, Proc. U. S. Nat. Mus., 1887, p. 437), but in view of the close proximity of Cat Island to Watlings, it is probably nearer to the iguana described below, if not actually identical with it, than to the form inhabiting Cuba. The third species peculiar to the Bahamas is *Cyclura carinata* from Turk's Island, the most peculiar of them all.

**Cyclura rileyi,** sp. nov.

*Diagnosis.*—Combs on second and third toes; scales on muzzle large; no median protuberances anterior to eyes; verticils on tail feebly developed; a large patch of tubercular scales on side of throat below angle of mouth; a small shield in contact with nasal between supranasal and postnasal; dorsal crest represented by about 75 (71–79) enlarged strongly keeled scales.

*Habitat.*—Watlings Island, Bahamas.

*Type.*—United States National Museum, No. 31,969; Watlings Island, Bahamas, July 13, 1903; J. H. Riley, collector.

*Description.*—Adult female; United States National Museum, No. 31,969; Watlings Island; July 13, 1903; J. H. Riley, collector. Rostral wide, much wider than mental, broadly in contact with nasal; nasal very large, larger than any other shield on the head, broadly hexagonal, forming a long suture with its fellow; nostril nearly ovoid, large, near the upper posterior corner of the nasal; nasal in contact with a large elongate supranasal, and two postnasals, the upper one small and squarish, the lower larger, both this and the nasal separated from the anterior supralabials by two or three rows of small shields; supranasals broadly in contact on the middle of the snout, each followed by two pairs of prefrontals, one behind the other, both larger than supranasals, and the posterior pair larger than the anterior; the prefrontals are separated on the median line by a few small and irregular shields; top of head behind prefrontals covered by small irregular polygonal shields, those on outer and anterior portion of supraocular region being smaller, but otherwise without a clearly recognizable arrangement into supraorbital semi-circles and supraocular disks; all cephalic shields and scales smooth or slightly tuberculate; occipital somewhat larger than the adjacent scutes; no distinctly differentiated superciliary shields, only two of the anterior ones adjoining the canthus rostralis being somewhat enlarged and elongated; four small shields on canthus rostralis behind postnasals; shields covering the loreal triangle numerous, flat, elongate, irregularly polygonal and varying in size, anteriorly wedged in between the nasals and the supralabials, two to three rows separating the latter from the postnasal; a series of enlarged keeled suboculars separated from the supralabials by about seven rows of small elongate hexagonal scales; scales covering the temporal region irregular in size and shape, some almost granular; a group of larger tubercular shields or scales in front of the upper edge of the tympanum, one being particularly prominent, and a single series of similar ones along the anterior edge of the tympanum; tympanum ovoid, its vertical diameter less than diameter of eye; supralabials low and elongate, six to under the center of the eye; lower labials higher than the supralabials, but smaller than the malar shields; the three anterior malars in contact with the lower labials, the posterior ones separated from them by one and two rows of elongate polygonal shields but no granules or small scales; the posterior malars with a blunt tubercle or keel at the

lower edge; throat covered with small uniform juxtaposed scales; on each side below the angle of the mouth a patch of larger, more rounded tubercles separated by scales corresponding to the other throat scales; a strong transverse fold across the lower neck joined by numerous longitudinal folds on the sides of the neck and a high (about 25 mm.) dewlap on the median line; back covered with small uniform squarish scales in tolerably regular series, 10–12 scales in the long diameter of the tympanum; a curved nuchal crest consisting of about 20 spines, the longest about 25 mm. high and slightly falcate; a series of 79 enlarged, elongate, keeled scales forming a slight crest on the median line of the back; scales on underside similar to those on back, those on upper side of arm, especially forearm, somewhat larger, those on hind legs even more so (about 6 in the long diameter of the ear) and with indication of keels; a single series of about 20 femoral pores; inner side of second toe with one "comb," of third toe with two "combs," each consisting of three lobes; tail compressed, covered with obliquely keeled scales in vertical rows forming but faintly indicated verticils, about five rows of the larger scales to a verticil where such can be made out; tail surmounted by a series of enlarged, pointed, triangular scales forming a strongly serrated edge.

Color, which according to Mr. Riley has not changed materially in the preserving fluid, dull "smoke gray," on the upper surface irregularly and obscurely marked with variously anastomosing blotches and marblings of "tawny-olive."

*Dimensions.*—Total length (tail regenerated), 597 mm.; tip of snout to vent, 272; tip of snout to orbit, 24; tip of snout to ear, 51; width of head, 35; fore limb, 106; hind limb, 161; vertical diameter of tympanum, 9.

In No. 31,966 which has the tail complete the dimensions are as follows: Total length, 558 mm.; tip of snout to vent, 208; vent to tip of tail, 350. The tail is consequently more than 1½ times the length of head and body.

*Variation.*—The individual variation displayed by the seven specimens collected is surprisingly small. The scutellation is essentially as in the type specimen described above, with here and there an additional small shield intercalated where two sutures meet, the only greater deviation being that of No. 31,970 in which the anterior prefrontals are devided transversely. The anterior superciliaries are also better defined in some of the specimens than in the one described, and the arrangement of the supraorbital ridge is also occasionally better defined. The number of enlarged keeled scales forming the dorsal crest, or rather ridge, varies between 71 and 79, one each having these numbers, one each having 73, 76 and 77 and two 75 scales. The color is also fairly uniform throughout the series.

*Remarks.*—This new species, though probably nearest related to the Cuban *C. cyclura*, shows certain leanings towards *C. cornuta* in the smallness of the scales covering arms and legs and the undeveloped condition of the caudal verticils. The similarity to the other Bahaman species is

not remarkably close, and altogether the new form may be easily identified by the characters pointed out in the diagnosis.

*Field notes by Mr. Riley.*—This species is very common on two small keys in the large salt-water lake on Watlings Island, but is very rarely found on the main part of the island, probably caused by the large number of cats that are said to be running wild. The iguanas must have reached the keys by swimming. The large key is locally known as Iguana Cay. It is several hundred yards long and fifteen or twenty broad. Mangroves grow around the shore, but the center is covered with a large cactus tree. The key, of course, is nothing but coral rock. The ground under the cactus is bare and here most of the iguanas are found. They have a habit of running very swiftly and then suddenly stopping, unless very much frightened when they go into holes in the rock, with which their domain is abundantly supplied. They have a lumbering gait that carries them over the ground very rapidly. They also climb trees to some extent, and one of those shot was about five feet up in a mangrove. Two of the females opened were heavy with eggs, one of them containing five, about the size of turtle eggs.

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PROCEEDINGS

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# ON SPECIES OF SOUTH AMERICAN DELPHINIDÆ DESCRIBED BY DR R. A. PHILIPPI IN 1893 AND 1896.

BY FREDERICK W. TRUE.

In 1893 Dr. R. A. Philippi, Director of the National Museum of Chili, described several new species of porpoises and commented on various South American forms previously known. In 1896 he supplemented this by a second paper on the same subject.*

These two papers constitute a valuable contribution to the knowledge of the *Delphinidæ* of South American seas, but, on account of lack of access to recent literature, or for some other reason, many of the different forms are assigned to genera to which they can at present hardly be considered to belong. As I have given the family *Delphinidæ* considerable study and have examined the types of the majority of the species described by Gray and other cetologists, I venture to express below my opinions as to the probable affinities and correct scientific names of the various forms described or mentioned by Dr. Philippi.

*Philippi, R. A., Los Delfinos de la Punta Austral de la América del Sur. <*Anal. Mus. Nac. Chile*, Sec. 1, Zool., No. 6, 1893. pp. 1–18, pls. 1–5. Philippi, R. A., Los Cráneos de los Delfines Chilenos. <*Op. cit.*, No. 12, 1896, pp. 1–20, pls. 1–6.

For the sake of brevity I have cited the earlier paper by its date, 1893, and the later one by 1896, adding the proper page number.

"**Delphinus? superciliosus** Lesson" (1893, p. 6, pl. 1, fig. 2).

Dr. Philippi copies Lesson's figure of this species and makes a few remarks regarding it, but mentions no new material. It seems hardly probable that the species belongs to the genus *Delphinus*. The shape of the snout would rather indicate *Lagenorhynchus*, though the coloration is not characteristic of that genus.

"**Delphinus cæruleo-albus** Meyen" (1893, p. 6, pl. 1, fig. 1).

This species, the type-skull of which I examined in 1887, belongs to the genus *Prodelphinus*. (See Bull. 36, U. S. Nat. Mus., p. 62.)

"**Delphinus amphitriteus** Philippi" (1893, p. 7, pl. 1, fig. 3).

The osteological characters of this species are not given, nor is the skull figured, and it is uncertain, therefore, whether it belongs to the genus *Delphinus* or *Prodelphinus*. The probabilities are much in favor of the latter. Dr. Philippi compares it with *cæruleo-albus*, but points out differences of color and proportions by which it may be distinguished from that species. In this he is no doubt justified, though as *cæruleo-albus* is a South American species and its range of color variation is unknown, later observations may show that there is a closer relationship between these two forms than can now be made out. It is interesting to note the resemblance between *amphitriteus* and the *Delphinus marginatus* of Pucheran, which I consider identical with *Prodelphinus euphrosyne* (Gray); also between the former and the *Delphinus lateralis* of Peale, which is likewise probably a *Prodelphinus* (See Bull. 36, U. S. Nat. Mus., pl. 15, figs. 1 and 3).

"**Phocæna (Hyperoodon?) albiventris** Perez in lit." (1893, p. 8, pl. 2, fig. 3).

"**Tursio (Phocæna) albiventris** Perez" (1896, p. 15, pl. 4, fig. 3; pl. 5, fig. 3; pl. 6, fig. 3?).

Why the generic name *Hyperoödon* should have been used in connection with this species is far from clear, as nothing about it suggests that genus in any way. The use of the generic name *Tursio* is much more easily justified, for Gray, in 1866, included under it one species, *Tursio eutropia*, which is probably closely related to, or identical with, Dr. Perez Canto's *albiventris*. The original type of Gray's *Tursio* in 1844, however, was the species now generally known as *Tursiops tursio*, which is certainly not congeneric with *eutropia*. The point is of no special importance as the generic name *Tursio* was used by Fleming and by Wagler prior to the date at which Gray first employed it.*

The proper name for *Delphinus eutropia* Gray is *Cephalorhynchus eutropia*. Whether *P. albiventris* of Perez Canto is really identical with that species is not entirely certain, though there is a strong probability that such is the case. I was at first inclined to associate *albiventris* with *Lagenorhynchus obscurus* (Gray) which it certainly resembles in proportions, though not exactly in color. Dr. Philippi's figures of the skull, however, show that his species is a *Cephalorhynchus*, and his measurements agree well with those of the type-skull and other specimens of *C. eutropia*, except that the beak appears to be a little longer. Dr. Perez Canto's description and figure of the exterior show that the color-pattern resembles that of other species of *Cephalorhynchus* except that the posterior lateral white mark is not divided by an anteriorly-directed arm of black, to form a trident. The shape of the pectoral fins is that of a *Cephalorhynchus*. As the exterior of *C. eutropia* has remained unknown hitherto, this identification, if correct, is of much interest. The type and another specimen of *C. eutropia* in the British Museum are from the coast of Chili, and the skull in the United States National Museum is also believed to be from that locality.

Trouessart cites *albiventris* under the genus *Cephalorhynchus*,

*See Palmer, T. S. Notes on three genera of Dolphins. <Proc. Biol. Soc. Washington, XIII, 1899, p. 23.

with a mark of interrogation.* After Dr. Perez Canto had sent a description of the species to Dr. Philippi, he published one himself in the Actes de la Société Scientifique du Chili, 5, p. 227, 1896, under the name of *Phocæna albiventris*.

"**Phocæna philippii** Perez in lit." (1893, p. 9, pl. 3, fig. 2).

"**Acanthodelphis (Phocæna) philippii** Perez Canto" (1896, p. 8, pl. 3, fig. 2.)

The description of this species published by Dr. Philippi in 1893 was accompanied by a figure of the exterior (pl. 3, fig. 2). This figure was replaced in 1896 by a rather better one from another individual, showing the tubercles on the dorsal fin, etc.; figures of the skull were also added (1896, pl. 2, fig. 2; pl. 3, figs. 1–5

From the latter it is obvious that Dr. Perez Canto was correct in referring the species to the genus *Phocæna*. It seems scarcely advisable to give generic rank to the later name, *Acanthodelphis*, which Gray established in 1866 as a subgeneric name for Burmeister's *Phocæna spinipinnis*, since the characters on which the distinction is based are those of proportions and of the dermal tubercles. In cranial characters *spinipinnis* does not differ from *Phocæna*.

Dr. Philippi's figures of *philippii* show (as he himself recognized) that this species is most closely allied to *spinipinnis*. He considers that it should be regarded as distinct on account of the shape of the head, the size of the mouth and the shape of the caudal margins; also because of certain differences in the details of the skull. So far as the external characters are concerned, the shape of the head is the only one which would seem to me likely to be of importance. The shape of the caudal peduncle in Burmeister's figures is probably due to an artist's misconception. It will be noticed that it is followed in all Burmeister's figures without regard to what genera and species

*Trouessart, Cat. Mam., 1898–99, p. 1041.

they represent.* Dr. Philippi's figures go to the other extreme, and show the caudal region as an elongated cone. It is not likely that a photograph would substantiate either of these forms, so that this character is hardly worth insisting upon. The dimensions of the body appear to be quite alike in the two species. The excellent figures of the skull *P. philippii* show that it is very closely allied to *spinipinnis*. The differences in detail which Dr. Philippi points out seem to me individual rather than specific. It is to be remembered that *P. spinipinnis* is a South American species, though from the Atlantic instead of the Pacific.

On the whole, I am inclined to the opinion that *spinipinnis* and *philippii* are specifically identical.

Trouessart cites *philippii* under the genus *Cephalorhynchus*, with a mark of interrogation,† but I am unable to find any warrant for that association.

After Dr. Perez Canto had sent the description of this species to Dr. Philippi, he decided to publish an account of it himself, which he did in the Actes de la Société Scientifique du Chili, 5, p. 227, 1896, under the name of *Phocæna philippii*.

"**Phocæna posidonia** Philippi" (1893, p. 9, pl. 2, fig. 1).

The skull of this species is not figured or described, but judging from the shape of the head, it should be assigned to the genus *Lagenorhynchus*. There is nothing about it which suggests a *Phocæna*. Dr. Philippi compared it with *L. fitzroyi*, which he very properly considers as closely allied to it, having

*Beddard (Book of Whales, 1900, p. 251) regards the caudal ridges shown in Burmeister's figure of *P. spinipinnis* as "the most remarkable character," and views it as a survival of an embryological character. I cannot subscribe to this opinion for the reason given above. It is true that Dall's figure of *Phocæna dallii*, which I copied in Bull. 36, U. S. Nat. Mus., pl. 37, fig. 1, shows similar ridges, but I believe this to be an inaccuracy also. It appears to be a matter of special difficulty to make a correct graphic representation of the caudal region of a cetacean. Some artists exaggerate the thinness of the superior and inferior margins, while others give this region the shape of a truncate cone, and do away with the ridges altogether.

†Trouessart, Cat. Mam., 1898–99, p. 1041.

the same form and an equal number of teeth. He considers, however, that it is distinguishable by the color and the shape of the head. So far as the latter is concerned, it will be seen by consulting Bull. 36, U. S. Nat. Mus., p. 88, where the outline of the head of the type of *L. fitzroyi* is given, that Waterhouse's figure is not likely to be correct in this particular. The difference in color is considerable and constitutes a sufficient reason for regarding *L. posidonia* as a separate species, though it could be wished that the sketch of *L. fitzroyi* had more the appearance of accuracy. It should be noted that *L. posidonia* and *L. fitzroyi* are from localities on the coast of Chili separated by about 450 miles.

"**Phocæna d'orbignyi** Philippi" (1893, p. 10) "(**Delphinus cruciger** D'Orb. non Quoy et Gaim.)."

Dr. Philippi regards it necessary to rename the *Delphinus cruciger* of d'Orbigny (1847) on account of its being preoccupied by *D. cruciger* Quoy and Gaimard (1824). As I explained in 1889,* Quoy and Gaimard's species was one of those founded on porpoises "vus en mer et dessinés à distance." I do not consider it, therefore, as having any validity. Such being the case, it seems to me that *D. cruciger* d'Orbigny and Gervais may be allowed to stand.

"**Phocæna lunata** (**Delphinus**) Lesson" (1893, p. 11, pl. 3, fig. 3).

This name was applied by Lesson† to a kind of porpoise seen in the bay of Concepcion, Chili. He remarks: "We were unable to kill a single individual." In view of this statement, it seems to me that the species has no status.

"**Phocæna cruciger** (**Delphinus**) Quoy and Gaimard" (1893, p. 11, pl. 3, figs. 4 (**bivittata**) and 5).

This species, and the *D. bivittata* of Lesson, which Dr. Philippi cites in the same connection, are among those "vus en mer

*Bull. 36, U. S. Nat. Mus., p. 91.

†Voyage of the *Coquille*, Zoology, I, 1826, p. 182.

et dessinés à distance." They do not appear to me to merit serious consideration. F. Cuvier very justly remarks regarding these and other similar species:

These dolphins having been seen by trained men, by observers whose experience is the result of long practice, promise some day to really enrich natural history; but until they have been found again and their skins have been collected, so that their principal parts can be studied, we can only regard them as probable types of species destined to be established at some time more or less near.*

The object of assigning this species both to *Phocæna* and to *Delphinus*, or what is intended thereby, is not clear. In the index it is cited under both genera.

"**Phocæna obtusata** Philippi" (1893, p. 12, pl. 3, fig. 1).

This remarkable species is quite unlike any porpoise with which I am acquainted, especially as regards coloration. As no part of the skeleton is figured or described, it is impossible to decide whether the species really belongs in the genus *Phocæna*. Certainly the pattern of coloration is very different from that of any other species of the genus. The shape of the fins and head suggest relationship with *Cephalorhynchus*, but the color-pattern does not agree. Further information regarding this species will be received with much interest. The size of Dr. Philippi's specimen would suggest that it was not fully adult.

"**Delphinapterus leucorrhamphus** (**Delphinus**) Péron" (1893, p. 15, pl. 4, figs. 2 and 3).

Dr. Philippi quite properly inquires why Lacépède changed the name *leucorrhamphus* in Peron's manuscript to *peronii*. So it was, however, and the latter name under rules now generally adopted is binding. The generic name *Delphinapterus*, however, was originally applied by Lacépède to the white whale or beluga. Later, Lesson transferred it to *leucorrhamphus* or

*Hist. Nat. des Cétacés, 1836, p. 225.

*peronii*, which was not correct. The latter must take the next valid generic name which is *Lissodelphis*. The proper name of the species under consideration, therefore, is *Lissodelphis peronii* (Lac.).

Dr. Philippi gives an excellent figure of the species, from a specimen taken east of Patagonia, which is the exact counterpart of the figure published by Gray and copied in Bull. 36, U. S. Nat. Mus., pl. 21, fig. 1.

The opinion is expressed by Dr. Philippi that the animal referred to this species by Lesson* really represents a separate species to which he gives the name *Delphinapterus lessonii* (*op. cit.*, p. 17). My own opinion in the matter was expressed in 1889, in Bull. 36, U. S. Nat. Mus., p. 79, as follows:

"Lesson's figure (Voyage of the *Coquille*, pl. 9, fig. 1) represents a dolphin with white flukes and an elongated beak, which characters are also mentioned in the text. This may be a distinct species, though it is more than probable that the figure is inaccurate."

The measurements of Lesson's and Philippi's specimens show more agreements than discrepancies.

"**Globiocephalus globiceps** (**Delphinus**) Cuv." (1893, p. 17).

"**Globiocephalus chilensis** Philippi" (1896, p. 7, pl. 1, figs. 3 and 4).

Dr. Philippi had two skeletons from the coast of Chili, which in 1893 he regarded as belonging to *Globicephala globiceps* (= *G. melas*), but in his paper of 1896 he describes them as a new species, under the name of *G. chilensis*.

The figure and measurements of the skull given by Dr. Philippi indicate that *chilensis* is a separate species of the group of which *melas* is typical. In this group of blackfish the premaxillæ do not cover the maxillæ completely in the anterior portion, and there is a large sagitate white mark on the inferior surface of the body. Dr. Philippi does not describe the color of

*Voyage of the *Coquille*, Zoology, I, pt. 1, p. 180.

*chilensis*, but the skull presents the character just mentioned. The measurements indicate that the rostrum of the skull is longer relatively than in *melas*, and the cranium narrower. In Dr. Philippi's two skeletons the number of vertebræ was 54 and 57 respectively. If the specimens were complete, this would indicate a specific difference, as in *G. melas* there are 59 or 60 vertebræ.

*Globiocephalus grayi* Burmeister, with which Dr. Philippi compares his specimens, does not belong to that genus, but is identical with *Pseudorca crassidens* Reinhardt.

"**Delphinus chilensis** Philippi" (1896, p. 10, pl. 2, fig. 3).

This species is founded on a foetus 24.6 cm. long. It is probably either a *Delphinus* or a *Prodelphinus*, but one can hardly hazard an opinion without knowing something of the characters of the skull, which is neither figured nor described by Dr. Philippi. It seems undesirable to found species on foetal specimens in this difficult group of animals. The uncertainties are already sufficiently formidable, and ought not to be added to.

"**Eutropia dickii** Gray" (1896, p. 11).

An examination of the type of this species which I made in 1884, convinced me that it belonged to the genus *Cephalorhynchus*. The correct name is *C. eutropia*. (See Bull. 36, U. S. Nat. Mus., p. 112.)

"**Tursio? panope** Philippi" (1896, p. 14, pls. 4–6, fig. 2).

I confess that I am unable to determine even the genus to which this singular species belongs. The quite thin orbital edges, the (apparently) separate pterygoids and straight mandible suggest *Lissodelphis*, but the small number of teeth and above all the extraordinary curviture of the expanded proximal

end of maxilla, do not accord with that genus. Indeed the character last mentioned is not present in any genus of the *Delphinidæ* with which I am acquainted. If the drawings of the skull are correct in this particular, the species probably represents a genus not hitherto known. Further study of the type-specimen can alone resolve the problem.

"**Tursio platyrrhinus** Philippi" (1896, p. 16, pl. 4, fig. 1; pl. 5, fig. 1; pl. 6, fig. 1?).

I am of the opinion that this species should be assigned to the genus *Cephalorhynchus*, and that in spite of the differences in the skull shown by the figures, it is probably the same as the *albiventris* Philippi, which I consider identical with *C. eutropia* (Gray). Dr. Philippi remarks of it:

The nasal bones are very peculiar, are flat and do not extend out at all; they do not touch the intermaxillæ as in the foregoing species (*albiventris*) but only the maxillæ, and each exhibits a large oblique cavity, which occupies the middle of the bone, The beak is a little narrower than in the preceding species, and I should have referred the two skulls of *T. platyrhinus* to that species, if I did not believe that the different form of the nasals is a distinguishing character of the greatest importance.*

In view of the great amount of individual variation in the form of the nasals in all species of the *Delphinidæ*, it does not seem probable that this character alone is sufficient for the separation of species.

It will be noted that the shape of the beak in *T. platyrrhinus* as given on pl. 4, fig. 1, is very different from that in *albiventris*, but by examining the contour of the same skull shown in pl. 5, fig. 1, it becomes obvious that the outline in the former case is incorrect. I cannot help suspecting also that figure 3, plate 6, is intended to represent *platyrrhinus*, and figure 1 of the same plate, *albiventris*.

The species mentioned or described by Dr. Philippi and their probable identity as indicated above are as follows:

*Op. cit.*, p. 16.

| Name of species mentioned or described by Dr. Philippi. | Probable identity. |
|---|---|
| *Delphinus? superciliosus* Lesson. | *Lagenorhynchus? superciliosus* (Lesson.) |
| *Delphinus cærulco-albus* Meyen. | *Prodelphinus cæruleo-albus* (Meyen). |
| *Delphinus amphitriteus* Philippi. | *Prodelphinus amphitriteus* (Philippi). |
| *Phocæna* (*Hyperoodon*) *albiventris* Perez Canto.<br>*Tursio* (*Phocæna*) *albiventris* Perez Canto. | *Cephalorhynchus eutropia* (Gray). |
| *Phocæna philippii* Perez Canto.<br>*Acanthodelphis* (*Phocæna*) *philippii* Perez Canto. | *Phocæna spinipinnis* Burmeister. |
| *Phocæna posidonia* Philippi. | *Lagenorhynchus posidonia* (Philippi). |
| *Phocæna d'orbignyi* Philippi (=*D. cruciger* d'Orbig., non Quóy et Gaim.). | *Lagenorhynchus cruciger* (d'Orbigny and Gervais). |
| *Phocæna lunata* (*Delphinus*) Lesson. | Not based on specimens. |
| *Phocæna cruciger* (*Delphinus*) Quoy and Gaimard. | Not based on specimens. |
| *Phocæna obtusata* Philippi. | *Cephalorhynchus? obtusata* (Philippi). |
| *Delphinapterus leucorrhamphus* (*Delphinus*) Peron. | *Lissodelphis peronii* (Lacépède). |
| *Globiocephalus globiceps* (*Delphinus*) Cuv.<br>*Globiocephalus chilensis* Philippi. | *Globicephala chilensis* Philippi. |
| *Delphinus chilensis* Philippi. | Based on a foetus. |
| *Eutropia dickii* Gray. | *Cephalorhynchus eutropia* (Gray). |
| *Tursio? panope* Philippi. | New genus? |
| *Tursio platyrrhinus* Philippi. | *Cephalorhynchus eutropia* (Gray). |

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PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# A NEW HARE FROM GREECE.

BY GERRIT S. MILLER, JR.

[By permission of the Secretary of the Smithsonian Institution.]

A hare from Mount Parnassus, Greece, recently procured by the United States National Museum, differs conspicuously from all of the forms related to *Lepus europæus* that have been recognized during the past few years. As no name has as yet been applied to the Grecian hare the animal may be known as:

**Lepus parnassius,** sp. nov.

*Type.*—Adult male (skin and skull), No. 122,093, United States National Museum. Collected at Agorianni, north side of Lyakura (Parnassus) Mts., Greece, September 10, 1895. Received from Wilhelm Schlüter, of Halle, on the Saale, Germany.

*Characters.*—Intermediate in size between British specimens of *Lepus occidentalis*, and Swiss examples of *L. europæus*, but nearer the latter. General color less yellow than in the related forms; ears grayish instead of yellowish, and with much more extensive black area at tip; rump scarcely different from back. Skull with rostrum much less heavily built than that of *Lepus europæus*.

*Color.*—Hairs of dorsal surface, with four color bands. Beginning at the base there are (1) whitish smoke-gray, 12 mm., (2) black, 7 mm., (3) pinkish-buff, 5 mm., (4); black, 5 mm. The general effect is a coarse grizzle of black and pinkish-buff, the latter very slightly in excess, much

less so than the light, clear buff of the corresponding region in *Lepus europæus*. Sides and neck not noticeably different from back, but the grizzle less distinct, owing to the replacement of the sub-basel black by hair-brown. Rump essentially like back, but with a slight grayish cast due to the light gray bases of the hairs. The exact shade of this under color is about Ridgway's gray No. 10 at base of hairs, darkening to gray No. 7 near surface. Cheeks like sides, but more finely grizzled, and with a faint blackish wash below ear. An indistinct grayish-buff eye ring and loral stripe. Crown and face like back but more finely grizzled, and the bases of the hairs wood-brown. Ears light silvery-gray (the exact color not given by Ridgway) except for the following markings: a very finely grizzled stripe essentially concolor with top of head extending up anterior outer surface almost to tip, and about 20 mm. wide at middle: a similar area 45 mm. long by 12 mm. wide near middle of posterior inner surface; a black apical patch 40 mm. long by 30 mm. wide on posterior outer surface, extending downward along posterior outer rim as a band 4 mm. in width to about middle of ear, and spreading over both surfaces at tip and along upper fourth of anterior margin, the black apical area on inner surface about 10 mm. wide; a clear ochraceous-buff area 10 mm. in width between apical black and general gray of inner surface; a whitish line 3 mm. in width along inner anterior margin from base to above middle. Feet, outer surface of legs, flank patches, and throat, dull ochraceous-buff. Underparts and inner surface of legs white, this color much suffused with ochraceous-buff on front legs. Tail missing.

*Skull and teeth.*—The skull differs from that of *Lepus europæus* in smaller size and much less robust form. This is particularly noticeable in the rostral portion of the skull, both depth and width of which are reduced, but is also very evident in the form of the braincase. Supraorbital processes smaller than in *Lepus europæus*. Teeth as in the related species.

*Measurements*—External measurements of type (from well made skin), head and body, 600; hind foot, 150 (140); ear from crown, 130. Cranial measurements of type: greatest length, 96 (99)*; occipito nasal length: 94; diastema, 32.6 (30); greatest (oblique) length of nasals, 44 (45); length of nasals along median suture, 37.6 (40); breadth of both nasals together at middle, 16.6 (20); greatest breadth of both nasals together posteriorly, 21 (23.6); least interorbital breadth behind supraorbital processes, 14.4 (12); zygomatic breadth, 44 (48); breadth of braincase below roots of zygomata, 31 (34); palatal depth 24.6 (28); mandible, 75 (76); maxillary molar series (alveoli), 15.4 (18.6); mandibular molar series (alveoli), 18.4 (20.4).

*Specimens examined.*—One, the type.

*Cranial measurements in parenthesis are those of an adult female *Lepus europæus* from Werdenberg, Switzerland (No. 105,831).

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# A NEW SQUIRREL FROM LOWER SIAM.

BY GERRIT S. MILLER, JR.

[By permission of the Secretary of the Smithsonian Institution.]

Five small lineated squirrels collected by Dr. W. L. Abbott in Trong, Lower Siam, differ markedly from the Burman *Sciurus barbei*. So far as can be judged from descriptions they are identical with the Malaccan *Sciurus macclellandi leucotis* of Bonhote*, though without actual comparison of specimens this question must remain open. They are, however, very doubtfully the same as the *Tamias leucotis* of Temminck†; and the name adopted by Mr. Bonhote is certainly invalidated by Gapper's earlier use of *Sciurus leucotis* for an American squirrel‡. The animal occuring in Trong may be known as:

**Sciurus novemlineatus,** sp. nov.

*Type.*—Adult male (skin and skull), No. 84,403, United States National Museum. Collected at 1500 ft. elevation in heavy forest among the hills of Trong, Lower Siam, February 19, 1897, by Dr. W. L. Abbott.

*Characters.*—Externally similar to *Sciurus barbei* Blyth, but ear smaller and with the hairs of the white tuft scarcely, if at all, blackish at base.

*Ann. and Mag. Nat. Hist., 7th ser., V, p. 53, January, 1900.

†Esquisses Zoologiques sur la Côte de Guiné, p. 252, 1853. "Peninsula of Malacca."

‡Zool. Journ., V, p. 206, 1830. Ontario.

Skull smaller than that of the Burman animal, the rostrum relatively shorter, and region between anterior zygomatic roots proportionally broader.

*Color.*—Type: sides of body and outer surface of legs hair-brown faintly tinged with yellowish, particularly on flanks. Back with nine longitudinal stripes as follows: a median black stripe 3 mm. in width is succeeded by a slightly broader stripe of dull ochraceous-buff; beyond this lies a black stripe 7 mm. wide followed by one of clear buff of similar width; this in turn is bordered on the outer side by a black line about as broad as the median stripe, extending from shoulder to rump. Except this short outermost band and the buff stripe, these longitudinal markings extend from middle of neck to rump. The buff stripe is continued forward along side of neck and under ear to cheek, where it spreads so as to surround eye, muzzle and lips. Behind eye there is a faint dusky line, and still more faint dusky wash extends over lower part of cheek and along side of neck between buff stripe and the darker color of the underparts. Ears tawny-ochraceous internally, black externally except for the conspicuous white tuft at tip; many of the hairs of this tuft white to extreme base. Whiskers black. Feet dull ochraceous. Underparts and inner surface of legs clear ochraceous-buff, slightly more yellow than that of Ridgway, the hairs slaty at base. Hairs of tail black at base and at extreme tip, the intermediate region occupied by a broad band of dull ochraceous, another of black, and a narrow subterminal area of yellowish-white. Pencil black slightly grizzled by numerous small yellowish annulations.

*Skull and teeth.*—The skull is smaller than that of *Sciurus barbei*, the diameter of the orbits and audital bullæ is less, and the rostrum is shorter. On the other hand, the interorbital width is fully as great as in the larger animal, and the lachrymal breadth is distinctly greater. The increased breadth of the region between the anterior zygomatic roots contrasted with the shorter rostrum gives the skull a very distinctive appearance as compared with that of *Sciurus barbei*. Teeth as in the Burman animal, but smaller throughout.

*Measurements.*—Measurements of type: total length, 210; head and body, 115; tail vertebræ, 95; hind foot, 30 (28); ear from meatus, 12; ear from crown, 8; width of ear, 8; skull, greatest length, 31 (33)*; basal length, 25 (27.8); length of nasals, 8 (9.4); interorbital breadth, 12 (12); lachrymal breadth, 16 (15.6); mandible, 17.4 (19).

*Specimens examined.*—Five, all from Trong, Lower Siam.

*Remarks.*—That this is not the same as the *Tamias leucotis* of Temminck is shown by the stress laid in the original description of the Malaccan animal on the presence of only one black longitudinal stripe. In one of Temminck's specimens the underparts were white slightly washed with reddish; in the other they appear to have been essentially as in the species found in Trong.

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*Cranial measurements in parenthesis are those of an adult male *Sciurus barbei* from Yado, Burma (No. 36,044).

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# DESCRIPTION OF A NEW TELMATODYTES.

BY HARRY C. OBERHOLSER.

Two long-billed marsh wrens recently collected by the writer at Sabine, Texas, were at first referred, with a query, to *Telmatodytes palustris palustris*. In light of material, particularly from Louisiana, which Mr. Ridgway has brought together for use in connection with his work on the genus, these two specimens prove to belong to the new race which is here described.

**Telmatodytes palustris thryophilus,** subsp. nov.

*Subspecific characters.*—Similar to *Telmatodytes palustris marianæ*, but much paler, more grayish brown above, the pileum with much less black, often with almost none, the upper tail-coverts obsoletely or not at all barred; chest not spotted.

*Geographical distribution.*—Coast region of Louisiana and eastern Texas.

*Description.*—Type, male adult, No. 184,769, United States National Museum, Biological Survey Collection; Sabine, Texas, September 3, 1902; H. C. Oberholser.

Pileum sepia brown, laterally and posteriorly with a slight admixture of blackish; remainder of upper surface mummy brown, the back with an irregularly triangular area of black streaked with white; tail brown, with black bars that on many of the feathers are confluent; wings fuscous, barred with black, brown, and buff; a white superciliary stripe that is extended posteriorly in a chain of white streaks encircling the hind

neck; postocular streak dark brown; sides of neck brown like the crown, but paler; cheeks and lores mixed white and brownish; lower surface white, the sides and flanks brownish ochraceous, also the breast tinged with this color; crissum brownish ochraceous, terminally whitish, and narrowly barred with dusky; lining of wing white.

This new form is most closely allied to *Telmatodytes palustris palustris*, from which its range is, however, widely separated, but it may be distinguished by its decidedly inferior size (being apparently a little smaller than even *T. p. marianæ*), duller, less reddish brown upper parts, besides having the brownish of sides and flanks spread over the breast and otherwise more extended. The type of *thryophilus* is in perfectly fresh autumn plumage, the condition which seems most nearly to resemble *palustris*, for summer specimens are paler, more grayish, and present a stronger contrast to *palustris* of even corresponding season.

The subjoined millimeter measurements of males of the three forms concerned in this comparison were taken by Mr. Ridgway, and he has courteously offered them for inclusion here.

| Number of specimens. | Name. | Wing. | Tail. | Exposed culmen. | Tarsus. | Middle toe. |
|---|---|---|---|---|---|---|
| 10 | *Telmatodytes palustris palustris* | 49.9 | 41.2 | 15. | 20.4 | 12.9 |
| 4 | *Telmatodytes palustris thryophilus* | 47.4 | 40.4 | 13.1 | 20.1 | 13.6 |
| 7 | *Telmatodytes palustris marianæ* | 48.7 | 39.2 | 14.5 | 20.3 | 11.8 |

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# DESCRIPTIONS OF NEW BIRDS FROM SOUTHERN MEXICO.

BY E. W. NELSON.

The birds described below, with three exceptions, were obtained by Mr. Goldman and myself during our expedition in the interest of the Biological Survey, to southwestern Mexico, in the winter of 1902–1903. For favors extended during the preparation of this paper, I wish to express my appreciation to Mr. Robert Ridgway and Dr. Chas. W. Richmond, Curator and Assistant Curator of Birds, in the National Museum.

**Geotrygon albifacies rubida,** subsp. nov.

Guerrero Quail Dove.

*Type.*—No. 185,510 ♂ ad., U. S. Nat. Mus., Biological Survey Coll. From Omilteme, Guerrero, Mexico. Collected May 19, 1903, by E. W. Nelson and E. A. Goldman.

*Distribution.*—Heavily forested slopes on coast side of the Sierra Madre of Guerrero (above 5,000 feet).

*Subspecific characters.*—Generally paler than *G. albifacies*, with underparts more uniformly buff.

*Description.*—Generally similar to *G. albifacies*, but chestnut of upperparts paler, with a more yellowish cast; underparts nearly uniform buffy, a little darker on sides of body, with scarcely a trace of the ashiness on breast so commonly present in G. *albifacies*.

*Dimensions of type.*—Wing, 160; tail, 113; culmen, 16; tarsus, 43.

*Remarks.*—This form is based on eleven specimens all from the type locality.

### Dactylortyx thoracicus sharpei, subsp. nov.

Yucatan Long-toed Grouse.

*Type.*—No. 167,737, ♂ ad., U. S. Nat. Mus., Biological Survey Coll. From Apazote, Campeche, Mexico. Collected December 31, 1900, by E. W. Nelson and E. A. Goldman.

*Distribution.*—The Peninsula of Yucatan, including the States of Campeche and Yucatan (below 1,000 feet).

*Subspecific characters.*—Smaller than *D. thoracicus*; white area on abdomen larger; color of breast, flanks, top of shoulders, back and upper surface of wings paler; cheeks and superciliary stripe of type deeper and richer cinnamon rufous and top of head richer and brighter chestnut brown than in any male seen of other races of this species.

*Dimensions of type.*—Wing, 122; tail (?); culmen, 16; tarsus, 35.

*Remarks.*—In the Biologia, Vol. III, p. 309, Dr. Sharpe first called attention to the small size and paler colors of these grouse from Yucatan. Three specimens in our collection from Campeche agree with the Yucatan birds in these characters, and evidently represent a recognizable geographic race peculiar to the arid peninsula of Yucatan, which I take pleasure in dedicating to Dr. Sharpe.

In this connection I wish to record the confirmation of the validity of *Dactylortyx devius*, Nelson, by a series of 13 specimens taken by Mr. Goldman and myself at Omilteme, Guerrero, during May, 1903. It is altogether probable that specimens from intermediate territory will show that this is merely a well-marked geographic race of *D. thoracicus*.

### Syrnium occidentale lucidum, subsp. nov.

Mexican Spotted Owl.

*Type.*—No. 185,269, ♀ ad., U. S. Nat. Mus., Biological Survey Coll. From Mt. Tancitaro, Michoacan, Mexico. Collected February 27, 1903, by E. W. Nelson and E. A. Goldman.

*Distribution.*—Known only from the forested mountains about the southern end of the Mexican tableland (above 6,500 feet).

*Subspecific characters.*—Darker and with much less yellowish buffy suffusion throughout than in *S. occidentale;* white markings larger and clearer white.

*Description of type.*—Light markings as in *S. occidentale* but larger, clearer white and much more distinct; main color on top and sides of head, neck, body and underparts dark sepia brown, contrasting strongly

with the duller mummy brown of typical *S. occidentale;* the suffusion of yellowish-buffy, so marked in the latter, mainly absent or much reduced in present form: face dingy gray with scarcely a trace of buffy; legs, feet and toes whiter and more thickly spotted with brown; size about as in *S. occidentale.*

*Dimensions of type.*—Wing, 330; tail, 214; culmen, 35; tarsus, 63.

*Remarks.*—This form is based on a single specimen, but the National Museum has received another from the State of Guanajuato, Mexico, which is not at present accessible.

The shade of brown of *S. o. lucidum* approaches more nearly to that of *S. o. caurinum* than to that of typical *occidentale,* yet owing to the greater intensity of the buffy suffusion and the small size of the white spots on both upper and under parts of *S. o. caurinum* it is much more distinct from *lucidum* than is *occidentale.* The white spots throughout in *S. o. lucidum* average about twice as large as those in *S. o. caurinum;* while the gray face and general suppression of buffy in the Mexican bird show strongly on comparison with *caurinum.*

**Xiphocolaptes emigrans omiltemensis**, subsp. nov.

Omilteme Wood-hewer.

*Type.*—No. 185,530, ♂ ad., U. S. Nat. Mus., Biological Survey Coll. From Omilteme, Guerrero, Mexico. Collected May 19, 1903, by E. W. Nelson and E. A. Goldman.

*Distribution.*—Oak forests on south slope of the Sierra Madre of central Guerrero, near Omilteme (above 6,000 feet).

*Subspecific characters.*—Most like *X. emigrans sclateri* from which it differs in the duller, dingier shades of brown above and below, lacking most of the yellowish mixture so conspicuous in *sclateri;* white throat patch smaller, and white shaft lines on neck and breast narrower, fewer and more obsolescent posteriorly; white on throat and shaft streaks on upper and lower parts dingier white than in *sclateri* and less sharply contrasted with other colors. Size about as in *sclateri,* including length and proportions of bill.

*Remarks.*—The authors of the "Biologia" (Vol. II, pp. 183–184), have treated *Xiphocolaptes sclateri* as a synonym of *X. emigrans.* With eight specimens of the latter before me, two specimens (including type) of *sclateri* and four of *omiltemensis,* the specimens of *sclateri* may at once be distinguished from the series of *emigrans* by their longer and more slender bills, they also have the whitish area on the chin and throat less streaked, while the whitish shaft streaks on crown and breast are rather broader and more strongly marked.

**Cyanolyca mirabilis,** sp. nov.

Omilteme Jay.

*Type.*—No. 186,545, ♂ ad., U. S. Nat. Mus., Biological Survey Coll. From Omilteme, Guerrero, Mexico. Collected May 22, 1903, by E. W. Nelson and E. A. Goldman.

*Distribution.*—Known only from type locality in the oak forests on the Sierra Madre of Central Guerrero (above 7,000 feet).

*Specific characters.*—A narrow band of silvery white extends across forehead and back over eyes and behind ear coverts, to unite with large white area covering chin, throat, and under side of neck; rest of head, neck and upper breast black; rest of upper parts and under side of body blue.

*Description.*—A band of silvery white, 2 to 3 mm. broad, extends across forehead between fore part of orbits and thence back over eyes, along sides of crown and down behind ear coverts, to unite with a large silvery-white area covering throat and under side of neck; rest of head, neck and fore breast uniform black; back, including upper surface of wings and tail and under side of body, dull indigo blue; under side of wings dark hair brown; under side of tail brownish black.

*Dimensions of type.*—Wing, 110; tail, 118; culmen, 23; tarsus, 34.

*Remarks.*—The discovery of this remarkable species, the handsomest and most strikingly marked one of the genus, was one of the unexpected results of our visit to the rich bird district about Omilteme. So many rare and interesting species were taken during our brief stay that it is evident this locality would repay more careful work. The Omilteme jay, of which our collection contains 8 specimens, is so different from any of its known congeners that no comparison between them is needed. Its size is very similar to that of *C. pumilo.*

**Aphelocoma guerrerensis,** sp. nov.

Guerrero Jay.

*Type.*—No. 185,539, ♂ ad., U. S. National Museum, Biological Survey Collection, from Omilteme, Guerrero, Mexico. Collected May 19, 1903, by E. W. Nelson and E. A. Goldman.

*Distribution.*—Humid oak forest on west slope of the Sierra Madre of central Guerrero, Mexico (above 7,000 feet).

*Specific characters.*—Head and body uniform rich dark blue (between hyacinth and Berlin blue of Ridgway). Size larger than *Aphelocoma unicolor.*

*Description.*—Entire head, body, with upper surface of wings and tail rich dark blue (of a shade between hyacinth and Berlin blue of Ridgway); inner web and under surface of quills brownish black, a little darker than in *A. unicolor*; under side of tail coal black (much darker than in *A. unicolor*), with faint wash of blue in certain lights.

**Measurements of Aphelocoma guerrerensis and A. unicolor.**

| Name. | Wing. | Tail. | Culmen. | Tarsus. |
|---|---|---|---|---|
| Type of *Aphelocoma guerrerensis*. | 172 | 174 | 33 | 42 |
| *Aphelocoma unicolor*, ♂ ad., No. 144,679, U. S. N. M., Jico, Vera Cruz, Mex., July 14, 1893. | 170 | 161 | 29 | 42 |

*Remarks.*—The distribution of color in *Aphelocoma guerrerensis* and *A. unicolor* is the same, but the differences in size, proportions, and intensity of color between our series of the two forms are very constant. This being the case and in view of the isolation of the habitat of *A. guerrerensis*, it appears best to treat this form as a distinct species although evidently derived from *A. unicolor*.

*A. guerrerensis* is based upon a series of 11 specimens.

**Vireolanius melitophrys goldmani,** subsp. nov.

Goldman's Shrike Vireo.

*Type.*—No. 186,309, ♀ ad., U. S. Nat. Mus., Biological Survey Coll. From Huitzilac, Morelos, Mexico. Collected June 10, 1903, by E. W. Nelson and E. A. Goldman.

*Distribution.*—Oak forest on south slope of the mountains bordering south side of Valley of Mexico, in States of Mexico and Morelos (7,000 to 9,000 feet).

*Subspecific characters.*—Larger and generally paler than typical *V. melitophrys* with heavier black stripe on sides of throat: chestnut-rufous band across breast only, this color replaced along sides by wash of dull buffy.

*Description of type.*—Forehead dingy gray shading back into darker more slate gray on nape, back and sides of neck; gray of neck shading into color of back on shoulders without any definite limit between two areas; back, top of wings and rump light olive green; tail, slate gray washed above with color of rump; superciliary stripe lemon yellow becoming white posteriorly; broad stripe extending through eye and back over ear coverts, dark slate gray; broad white malar stripe extends back across cheeks to unite with area of same color covering chin, throat and underside of neck; this area overlaid with a faint wash of buffy. Well defined black stripe (heavier than in true *melitophrys*), extends from angle of lower mandible back along sides of chin and throat, thus outlining white malar stripe; band across forepart of breast light ferruginous chestnut; sides of body dull grayish; middle of breast, abdomen and

under tail coverts dull white with a strong wash of buffy along each side, and a much lighter suffusion of same over middle of white underparts; tail below slate gray with narrow white tips to feathers.

**Measurements of Vireolanius melitophrys and V. m. goldmani.**

| *Vireolanius melitophrys goldmani.* | Wing. | Tail. | Culmen. | Tarsus. |
|---|---|---|---|---|
| Ad. ♀ type. | 85 | 73 | 18 | 25 |
| Ad. ♀ from "near City of Mexico." | 84.5 | 73 | 19 | 26 |
| Yg. ♂ from type locality. | 86 | 72.5 | 16 | 26 |
| *Vireolanius melitophrys.* | | | | |
| Ad. ♂ from Jico, near Jalapa, Vera Cruz. | 81 | 69 | 20 | 25 |

*Remarks.*—The family to which *Vireolanius* belongs is distinguished by the identity of the sexes in color, and for this reason I have felt sufficiently confident that the well marked differences in color between the female specimens, from the mountains south of the Valley of Mexico, and our typical male from near Jalapa, Vera Cruz cannot well be considered due to sex. This conclusion is supported by the well marked differences of size—the three specimens of *goldmani* (including an immature male) are all larger than the typical male of *melitophrys*, and have shorter bills.

In the "Biologia" (Vol. I, p. 209), the authors describe a female of *V. melitophrys* from the Volcan de Fuego, Guatemala, as different from the male from the same locality. The distinguishing characters of the female in this description so closely parallel the characters, in which the immature male of *V. m. goldmani* differs from the females, that it appears a fair inference that the Volcan de Fuego female is an immature bird, and the differences due to immaturity and not to sex.

**Geothlypis chapalensis,** sp nov.

Chapala Yellow-throat.

*Type.*—No. 186,409, ♂ ad., U. S. Nat. Mus., Biological Survey Coll. From Ocotlan, Jalisco, Mexico. Collected June 26, 1903, by E. W. Nelson and E. A. Goldman.

*Distribution.*—Fresh-water marshes along lower Lerma River and eastern border of Lake Chapala (from near La Barca to Ocotlan), Jalisco, Mexico.

*Specific characters.*—Pattern of coloration as in *G. melanops*, but black mask extends higher up on forehead; light area bordering black mask yellow; upperparts darker olive-green; underparts richer yellow; culmen, tail, and tarsus longer.

*Description.*—A broad black mask covering front and sides of head including orbits; black mask bordered posteriorly by a yellow band extending about to middle of crown and down on sides of neck; rest of crown and nape bistre brown overlying and concealing yellow bases of feathers; rest of upperparts dark olive green; underparts bright gamboge yellow most intense on neck and breast; flanks washed with olive brown.

**Measurements of three species of Geothlypis.**

| Name. | Wing. | Tail. | Culmen. | Tarsus. |
|---|---|---|---|---|
| Type of *G. chapalensis*, ad. ♂. | 61 | 63 | 14 | 23 |
| *G. melanops*, ad. ♂. | 62 | 61 | 13 | 22 |
| *G. flaviceps*, ad. ♂. | 57 | 56 | 15 | 22 |

*Remarks.*—In fresh plumage the brown on crown and nape hides the basal yellow of the feathers, but as the plumage becomes worn the brown gradually disappears and the yellow band on crown broadens until in one of our series of eleven specimens the crown and nape are entirely yellow much as in *G. flaviceps*. The differences in size and proportions serve at once to distinguish the two species and the same holds good in regard to another closely related species, *G. flavovelatus*.

The female of *G. chapalensis* has a dull brown forehead and dull olive green crown, contrasting strongly with the yellow forehead and lighter green crown of this sex in *G. flaviceps*.

This species is based on eleven specimens.

**Thryophilus sinaloa russeus**, subsp. nov.

Russet Wren.

*Type.*—No. 185,893, ad. ♂, U. S. Nat. Mus., Biological Survey Coll. From Acahuizotla, Guerrero, Mexico. Collected May 9, 1903, by E. W. Nelson and E. A. Goldman.

*Distribution.*—Known only from type locality, but probably occurs in brushy foothills of the Sierra Madre del Sur throughout most of its extension in Guerrero.

*Subspecific characters.*—Differs from *T. sinaloa* mainly in the much brighter, more russet brown of upperparts of head, body, and wings; upper tail coverts and tail brighter, more cinnamon rufous; dark bars on

wings and tail and under tail coverts blacker and more strongly contrasted with the brown; size about as in typical *sinaloa*.

*Remarks.*—This subspecies is based upon five specimens. Typical *T. sinaloa* is exactly intermediate in coloration between *russeus* and *cinereus*.

**Troglodytes brunneicollis nitidus**, subsp. nov.

Zempoaltepec Wren.

*Type.*—No. 143,058, ♂ ad., U. S. Nat. Mus., Biological Survey Coll. From Mt. Zempoaltepec, Oaxaca, Mexico. Collected July 8, 1894, by E. W. Nelson and E. A. Goldman.

*Distribution.*—Humid forests on Mount Zempoaltepec, Oaxaca, and adjacent parts of the Cordillera in northeastern Oaxaca (above 6,500 feet).

*Subspecific characters.*—Both adults and young differ from typical *T. brunneicollis* in the deeper, or darker, reddish bistre-brown of upperparts, and the darker and richer buffy-cinnamon on neck and breast; size about the same.

*Remarks.*—This subspecies, based on two adults and one young of the year, from the very humid forest on Mount Zempoaltepec, shows the influence of the environment in its darker colors compared with *T. brunneicollis*, the type of which was taken in the more open and arid pine and fir forest of the mountains at La Parada near Oaxaca City, central Oaxaca.

**Henicorhina leucophrys festiva**, subsp. nov.

Guerrero Wren.

*Type.*—No. 186,596, ♂ ad., U. S. Nat. Mus., Biological Survey Coll. From Omilteme, Guerrero, Mexico. Collected May 23, 1903, by E. W. Nelson and E. A. Goldman.

*Distribution.*—Heavy oak forested mountain slopes of the Cordillera of western Michoacan and central-southern Guerrero (above 7,000 feet).

*Subspecific characters.*—Intermediate in coloration between *H. leucophrys mexicana* (Nelson) and *H. leucophrys capitalis* Nelson, but most like the former from which it differs mainly in having crown, top of neck and fore part of shoulders bistre brown; rest of back and rump slightly duller shade of rusty rufous; bill longer.

*Remarks.*—The color of crown and top of neck in this form contrasts more strongly with the rusty rufous of the rump than in *mexicana*, and like the latter it shows no sign of the darker line on the sides of the crown of *H. l. capitalis*.

**Hemiura leucogastra musica,** subsp. nov.

Palenque Wren.

*Type.*—No. 166,306, ♂ ad., U. S. Nat. Mus., Biological Survey Coll. From Teapa, Tabasco, Mexico. Collected March 20, 1900, by E. W. Nelson and E. A. Goldman.

*Distribution.*—Humid forests along base of Cordillera from Tabasco to northern Guatemala.

*Subspecific characters.*—Darkest of the subspecies of *H. leucogastra*; most like *H. l. brachyura* from which it differs in darker shade of reddish brown on upperparts, flanks and under tail coverts, and the obsolescence of bars on tail and under tail coverts, as in typical *leucogastra*.

**Sialia mexicana australis,** subsp. nov.

Southern Bluebird.

*Type.*—No. 185,183, ♂ ad., U. S. Nat. Mus., Biological Survey Coll. From Mt. Tancitaro, Michoacan, Mexico. Collected February 26, 1903, by E. W. Nelson and E. A. Goldman.

*Distribution.*—Wooded mountains on southern border of the Mexican tableland; From Mt. Orizaba, Puebla, west through Puebla (Tochimilco), Mexico (Mt. Popocatapetl), Morelos (Huitzilac), Michoacan (Mt. Patamban and Mt. Tancitaro) to the Sierra Nevada de Colima in southern Jalisco. Breeds above 6,000 feet.

*Subspecific characters.*—Most like *S. m. occidentalis* but larger (largest of the subspecies of *S. mexicana*). Males with rufous areas lighter, more cinnamon colored, and blue of upperparts richer or more intense than in *occidentalis* (nearly as in true *mexicana*); females with top of head, neck and rump deeper blue, rest of back and shoulders darker brown.

*Dimensions of type.*—Wing, 112; tail, 68; culmen, 13; tarsus, 22.

VOL. XVI, PP. 161-164 NOVEMBER 30, 1903

PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# DESCRIPTIONS OF TWO NEW MOLE RATS.

BY GERRIT S. MILLER, JR.

[By permission of the Secretary of the Smithsonian Institution.]

Among the Old World rodents in the United States National Museum are two forms of *Spalax*, which I am unable to identify with any of the species recently characterized by Nehring and Satunin. One is from northern Dobrudscha, the other from Beyrout, Syria. They may be described as follows:

### Spalax dolbrogeæ, sp. nov.

*Type.*—Adult male (skin and skull), No. 122,109, United States National Museum. Collected at Malcociu, Dobrudscha, Rumania, March 20, 1903. Received from Wilhelm Schlüter of Halle, a. S., Germany.

*Characters.*—A medium sized species nearly as large as *Spalax microphthalmus*, which it resembles in the form of the molar teeth, but from which it differs conspicuously in the much larger parietal bones.

*Color.*—Back, sides, and posterior half of head ochraceous-buff, slightly paler than that of Ridgway, the fur everywhere slate-gray beneath surface. Underparts and legs slate-gray, the color of sides extending as a distinct wash across middle of body. Face, cheeks, and region about mouth silvery drab-gray, the two lines of bristle-like hairs extending back from muzzle whitish in rather marked contrast.

*Skull.*—In general form the skull rather closely resembles that of *Spalax microphthalmus* as figured by Nehring, but the lambdoid ridge is almost straight, and each parietal bone is nearly as broad as long, and in size fully equal to the two together in the skull of the larger animal.

Anteriorly the two bones form a single point, and the latero-anterior border is continued backward almost to lambdoid crest, so that the outline of the bone is very nearly a right triangle. Sagittal crest well developed. Anterior margin of frontal straight.

*Teeth.*—The teeth agree with those of *Spalax microphthalmus*, as described by Nehring*, except that each of the first and second upper molars has an enamel island in the anterior loop, making the pattern an exact reversal of that in the first and second lower molars of *Spalax hungaricus*.† In all of the teeth the pattern is essentially alike, and consists of a single narrow reentrant fold on each side. The inner reentrant is placed a little in advance of the outer, and is curved forward, while the outer curves back. In the maxillary teeth the folds are all open, but in the lower jaw those of the inner side are closed. The anterior faces of the incisors both above and below are finely roughened by minute longitudinal wrinkles, but there are no distinct grooves.

*Measurements.*—Head and body, 230; hind foot 29 (25); skull, greatest length, 52; basal length, 45; basilar length, 42; occipito-nasal length (from inion), 41; palatal length, 26; diastema, 19; length of nasals, 19; breadth of both nasals together anteriorly, 7; breath of both nasals together posteriorly, 2.6; greatest breadth of rostrum, 11.4; zygomatic breadth, 38; mastoid breadth, 26; least interorbital breadth, 6; palatal breadth between middle molars, 2; depth at middle of palate, 18.4; least depth of rostrum behind incisors, 7; mandible from condyle, 31; mandible, from root of incisor, 32; depth of mandible through coronoid process, 18.8; upper molars, alveoli, 7.6; upper molars, crowns, 6.6; width of second upper molar (crown), 2.8; lower molars, alveoli, 7; lower molars, crowns, 6.6; width of upper incisor at alveolus, 3; width of lower incisor at alveolus, 3.4.

*Specimens examined.*—One, the type.

*Remarks.*—This is probably the same animal as the Rumanian *Spalax hungaricus* recorded by Matschie, in 1901.‡ It is readily distinguishable from the Hungarian species, however, by its much larger size and by the presence of an inner reentrant enamel fold in the posterior molar both above and below. *Spalax dolbrageæ* is apparently more closely related to *S. microphthalmus*.

### Spalax berytensis, sp. nov.

*Type.*—Adult female (skin and skull), No. $\frac{130099}{365855}$, United States National Museum. Collected at Beyrout, Syria, April, 1878, by W. T. Van Dyck.

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* Sitz.-Ber. Gesellsch. naturforsch. Freunde zu Berlin, 1897, p. 165.

† In the posterior loop of the left middle lower molar there is a very minute enamel island whose presence may be abnormal.

‡ Sitz.-Ber. Gesellsch. naturforsch. Freunde zu Berlin, 1901, p. 237. Prundu, Rumania.

*Characters.*—A medium sized species, not as large as *Spalax dolbrogeæ*. Face of incisors without distinct grooves. Enamel pattern essentially as in *Spalax kirgisorum*; posterior upper molar with no reentrant enamel fold on inner side, posterior lower molar with a deep fold on each side. Skull broad and robust, without special elongation of rostrum.

*Color.*—In color the type resembles that of *Spalax dolbrogeæ* so closely as to require no special description. In two half grown young the mouse-gray of the muzzle is extended back over most of head, while in an old, much abraded male the light tips of the hairs are so much worn away that the whole animal is a dirty plumbeous brown.

*Skull.*—The skull of an old male with much worn teeth rather closely resembles that of *Spalax dolbrogeæ*, but is not as large. The more noticeable details of form in which it differs from the Dobrudschan animal are as follows: The rostrum is not distinctly swollen at roots of incisors; the anterior zygomatic roots flare less abruptly; the posterior margin of antorbital foramen is extended further backward, so that the foramen appears larger when skull is viewed from above; the anterior outline of the frontals is conspicuously angular-emarginate; the parietal is rhomboid, its length under lambdoid crest nearly double that of anterior margin; the basioccipital is narrower in proportion to its length; the tubular portion of the audital bulla is better developed. In the type the same characters are apparent, except that the interparietal is wider along anterior suture.

*Teeth.*—Enamel pattern of molars similar to that of *Spalax kirgisorum* as figured and described by Nehring,* but with angles less sharp-pointed. First upper molar with well developed reentrant fold on inner side and two rather deeper folds on the outer side, the inner and the anterior outer almost meeting. Second upper molar with a deep fold on each side and a large enamel island opposite point of inner fold. Third upper molar entire on inner side, cut on outer side by two reentrant folds, of which the anterior is minute and inconspicious, the posterior deep and provided with a short posterior and long anterior curved off-shoot, the two off-shoots together forming a crescent parallel with inner edge of tooth. Each lower molar has a single deep reentrant fold on outer side. The first has two folds on inner side, the outer abruptly bent forward, the posterior slightly curved backward. The second has one reentrant angle on inner side. The third is provided with a deep anterior and a minute posterior fold. A large enamel island lies in posterior loop of second lower molar. Anterior faces of incisors finely roughened by minute, irregular, longitudinal folds. They show no trace of definite grooves, but the folds tend to form barely perceptible longitudinal ridges, three or four in number.

*Measurements.*—External measurements of type (from skin): Head and body, 130; hind foot, 24 (21). External measurements of old male from type locality: Head and body, 190; hind foot, 28 (24).

* Sitz.-Ber. Gesellsch. naturforsch. Freunde zu Berlin, 1897, p. 177, fig. 4 (p. 175).

Cranial measurements of type: Greatest length, — (49*); basal length, — (44.4); basilar length, — (40.4); occipito-nasal length (from inion), 30.4 (39); palatal length, 22 (29.4); diastema, 12 (17); length of nasals, 15 (20); breadth of both nasals together anteriorly, 5.2 (6.8); breadth of both nasals together posteriorly, 1.8 (2.8); greatest breadth of rostrum, 7.4 (10); zygomatic breadth, 27.2 (35); mastoid breadth, 22 (26); least interorbital breadth, 7 (6.4); palatal breadth between middle molars, 1.8 (2.4); depth at middle of palate, 13.4 (18.8); least depth of rostrum behind incisors, 5 (7); mandible from condyle, 24.8 (31); mandible from root of incisor, 24.6 (30); depth of mandible through coronoid process, 12.8 (17.6); upper molars, alveoli, 7.8 (8); upper molars, crowns, 8 (7); width of second upper molar (crown), 2.2 (2.8); lower molars, alveoli, 7.6 (7); lower molars, crowns, 6.4 (7); width of upper incisor at alveolus, 1.8 (2.6); width of lower incisor at alveolus, 1.8 (2.6).

*Specimens examined.*—Four, all from the vicinity of Beyrout.

*Remarks.*—In dental characters this species appears to be much like *Spalax kirgisorum*, an animal from which it differs very conspicuously in the large size and robust form of the skull. From its near geographic allies, *Spalax ehrenbergi* and *Spalax intermedius* it is also readily distinguishable; from the former by the absence of a reentrant fold on the inner side of the third upper molar and by the presence of only one fold on inner side of middle lower tooth; from the latter by the longer parietals (7 mm. instead of 5 mm. along sagittal crest), and by the absence of distinct grooves on the face of the incisor teeth.

* Measurements in parenthesis are those of an adult male (much older than the type) from the same locality (No. $\frac{36858}{13003}$).

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PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# A SECOND SPECIMEN OF EUDERMA MACULATUM.

BY GERRIT S. MILLER, JR.

[By permission of the Secretary of the Smithsonian Institution.]

One of the most remarkable of North American bats, the huge-eared, black-and-white *Euderma maculatum* (J. A. Allen), was wholly unknown before 1890, and, after its discovery, it eluded detection again for thirteen years. The original specimen, now in the American Museum of Natural History, was captured by Mr. Thomas Shooter, on a fence at the mouth of Castac Creek, near Piru, Ventura County, California, in March, 1890. It remained unique until a second individual was found dead in the Biological Laboratory of the New Mexico College of Agriculture and Mechanic Arts, at Mesilla Park, New Mexico, in September, 1903. This specimen, correctly identified, was presented to the United States National Museum, by Professor E. O. Wooton. It is an adult male preserved in alcohol, and bears the number 122,545. The history of this species is a

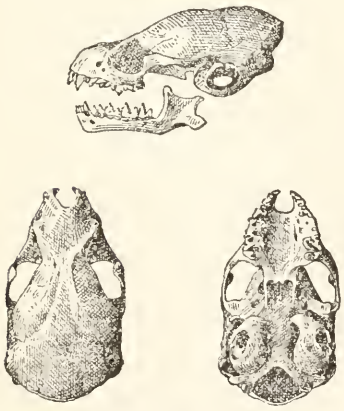

FIG. 1. Skull of *Euderma maculatum* (x 1½).

striking illustration of the uncertainty that attends the study of bats. The animal occurs in a region that has recently been the field of the most systematic biological explorations ever carried on in any country, yet only two individuals have been taken, and both of these were procured by persons not specially interested in mammals. All that trained collectors have added in more than a decade to our knowledge of *Euderma* is the vague second-hand report that the Vegas Valley, Nevada, is visited during hot weather by a large bat with jackass ears and white shoulder stripes.*

Through the kindness of Dr. J. A. Allen, I have been enabled to compare the Mesilla Park specimen with the type. In every way the individuals closely agree, even to minute details of size. The measurements of the two are as follows, those of the type in parenthesis: Total length, 107 (110); head and body, 60 (60); tail, 47 (50); tibia, 19.6 (21); foot, 9.8 (9); forearm, 49.6 (50); thumb, 9 (6.8); second digit, 42 (—); third digit, 86 (91); fourth digit, 72 (76.2); fifth digit, 64 (67.3); ear from meatus, 41 (34); ear from crown, 43 (—); width of ear, 25 (22); tragus, 14 (13); greatest width of tragus, 5 (5); skull, greatest length, 18.8 (19); basal length, 18; basilar length 16 (16.5); zygomatic breadth, 10.4 (10.9); greatest breadth of braincase above roots of zygomata, 9.4; greatest diameter of audital bulla, 5.8 (5.8); mandible, 12.6 (12.7); maxillary toothrow, exclusive of incisors (alveoli), 6; maxillary toothrow, including incisors (alveoli), 6.8 (6.8); mandibular toothrow, exclusive of incisors (alveoli), 6.4; mandibular toothrow, including incisors (alveoli), 7.2 (7.6). The species has been so thoroughly described that there appear to be no further important characters to note. The skull, however, has never before been figured, and that of the type is lost.

*North American Fauna, No. 13, p. 49. October 16, 1897.

VOL. XVI, PP. 167-170 NOVEMBER 30, 1903

PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# DIAGNOSES OF NINE NEW FORMS OF AMERICAN BIRDS.

BY ROBERT RIDGWAY.

[By permission of the Secretary of the Smithsonian Institution.]

The following new forms are included in Part III of "Birds of North and Middle America" and are additional to those already published in these "Proceedings," pages 105 to 111, September 30, 1903.

**Thryophilus pleurostictus ravus,** new subspecies.

Similar to *T. p. pleurostictus* but smaller, color of back, etc., more rufescent, secondaries less distinctly barred, and median underparts more broadly white.

Western Nicaragua; western Costa Rica?

Type, No. 89,701, Coll. U. S. Nat. Mus., adult male; San Juan del Sur, Nicaragua, January 17, 1883; C. C. Nutting.

**Thryophilus modestus pullus,** new subspecies.

Similar to *T. m. modestus* but darker and browner.

State of Chiapas, southern Mexico; Guatemala.

Type, No. 142,928, Coll. U. S. Nat. Mus. (Biological Survey Collection), adult male; Huehuetan, Chiapas, February 29, 1896; Nelson and Goldman.

**Salpinctes obsoletus notius,** new subspecies.

Similar to *S. o. obsoletus* but smaller, with larger bill and feet.

Southern Mexico.

Type, No. 142,868, Coll. U. S. Nat. Mus. (Biological Survey Collection), adult male; Tlalpam, Federal District, Mexico, December 8, 1892; E. W. Nelson.

**Henicorhina leucophrys castanea,** new subspecies.

Similar to *H. l. collina* (Bangs) but back darker chestnut, flanks brighter chestnut, and bill smaller (exposed culmen 13.5 instead of 14.5–16).

Eastern Guatemala.

Type, No. 39,563, Coll. Am. Mus. Nat. Hist. (Lawrence Collection); Guatemala.

**Henicorhina leucophrys berlepschi,** new subspecies.

Similar to *H. l. leucophrys* but pileum sooty brown with black lateral margin, instead of black slightly washed with sooty medially; black postocular stripe narrower.

Western Ecuador (Chimbo; Pedregal).

Type in Coll. Am. Mus. Nat. Hist., Chimbo, western Ecuador, November, 1882; F. de Siemiradzki.

=*Henicorhina hilaris* Berlepsch and Taczanowski, Proc. Zool. Soc. Lond., 1884, 284, part (specimen from Pedregal).

=*Henicorhina leucophrys* (not *Troglodytes leucophrys* Tschudi) Berlepsch and Taczanowski, Proc. Zool. Soc. Lond., 1883, 539 (Chimbo, western Ecuador; crit.).

**Henicorhina hilaris bangsi,** new subspecies.

Similar to *H. h. anachoreta* (Bangs) but darker and duller brown above, the pileum and hindneck sooty brown instead of olive; tail darker brown, more narrowly and less regularly barred with dusky; bill larger (exposed culmen 14–16, instead of 12.5–14).

Mountains of Santa Marta, Colombia, 3000–8000 ft. altitude.

Type, No. 163,791, Coll. U. S. Nat. Mus., adult male; San Francisco, Province of Santa Marta, Colombia, June 1, 1898; W. W. Brown, Jr. (Received from Outram Bangs.)

=*Henicorhina leucophrys* (not *Troglodytes leucophrys* Tschudi) Bangs, Proc. Biol. Soc. Wash., XII, 1898, 160, 181 (Pueblo Viejo, San Francisco, Palomina, and San Miguel, Colombia); Proc. New Engl. Zool. Club, I, 1899, 83, 84 (crit.; descr.). Allen, Bull. Am. Mus. Nat. Hist., XIII, 1900, 180 (Valparaiso and El Libano, Colombia).

**Cistothorus polyglottus lucidus,** new subspecies.

Similar to *C. p. elegans* but coloration brighter, more rufescent; adults with white streaks on back broader, more purely white; young with general color more strongly rufescent (the rump and upper tail-coverts dull russet or cinnamon instead of wood brown, the sides, flanks, and under tail-coverts cinnamon or deep buffy cinnamon, instead of pale wood brown); tail larger.

Isthmus of Panama (Boquete, Chiriqui).

Type, No. 8624, Coll. E. A. and O. Bangs; adult male, Boquete, Chiriqui, Panama, April 25, 1901; W. W. Brown, Jr.

=*Cistothorus polyglottus elegans* (not *C. elegans* Sclater and Salvin) Bangs, Proc. New Engl. Zool. Club, III, 1902, 53 (Boquete).

**Salpinctes obsoletus exsul,** new subspecies.

Similar to *S. o. pulverius* Grinnell but coloration darker; differing from *S. o. obsoletus* in having lateral rectrices more extensively barred with cinnamon-buff, shorter wing, longer tail, and larger feet.

San Benedicto Island, western Mexico.

Type, No. 117,502, Coll. U. S. Nat. Mus., adult male, San Benedicto Island, Revillagigedo group, western Mexico, March 10, 1889; C. H. Townsend.

**Salpinctes maculatus,** new subspecies.

Similar to *S. fasciatus* Salvin and Godman but flanks barred with dark brown, instead of black, the bars narrower.

Northern Guatemala.

Type, No. 150,904, Coll. U. S. Nat. Mus., adult male; Toyabaj, Department of Quiché, northern Guatemala, May 7, 1892; Heyde and Lux.

VOL. XVI, PP. 171-176 DECEMBER 31, 1903

PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# DIAGNOSES OF NEW SPECIES OF MOLLUSKS FROM THE SANTA BARBARA CHANNEL, CALIFORNIA.

BY WILLIAM HEALEY DALL.

During the past summer Mr. Herbert N. Lowe and Mr. John H. Paine, with the aid of a gasoline launch, did some dredging in the Santa Barbara Channel near Avalon, Catalina Island. The depth of water was from 40 to 60 fathoms.

The result of this work, by two enthusiastic young collectors, has been very interesting, two genera not before known to inhabit the coast having been discovered, represented by two species, both new, one of which, *Metzgeria californica*, has already been described elsewhere by the writer.

The following species, from among those sent to the writer for identification, appear to be new, and diagnoses of them are now provided. The presence of so many novelties gives some idea of the richness of the molluscan fauna of this region, and indicates that many more forms probably remain to be discovered in the same vicinity. When not otherwise stated the locality is as above mentioned, and all except *Mitra dolorosa*, are represented in the collection of the gentlemen named.

Mrs. Lydia Emerson Fancher and Mrs. Lillie J. Sawin assisted in the search for mollusks and at the request of Mr. Paine two of the species have been named in honor of these ladies.

**Actæon (Rictaxis) painei** sp. nov.

Shell with one smooth, polished nuclear and three or more subsequent strongly sculptured whorls; apex sinistral, immersed; spire very short and blunt; body stout, ovate, slightly peripherally flattened; sculpture of strong, subequal, spiral riblets, covering the whole shell, separated by slightly narrower, coarsely punctate channels; outer lip sharp; pillar obliquely subtruncate in front, twisted, vertical, with a prominent plait-like edge, and a moderately prominent plait about midway of the exposed portion; body with a very thin wash of callus; color of the shell yellowish subtranslucent white. Length of shell, 8.0; of aperture, 7.25; max. breadth of shell, 5.0 mm.

This is immediately distinguishable from *A. punctocoelata* Cpr., by its short spire, stouter form, and absence of the blackish color bands. The specimen described seems not quite mature. It is No. 109,301, U. S. National Museum.

**Clathurella lowei** sp. nov.

Shell translucent white, with a brownish-pink flash on the spire and base; nucleus smooth, polished, rounded, and rather inflated, of one whorl; subsequent whorls, five (or more), sculptured with (on the penultimate whorl 13) short axial riblets, slightly oblique with narrower interspaces, the riblets confined to the peripheral part of the whorl and separated from the suture behind by the spirally striated anal fasciole; spiral sculpture covering the whorl, of slender flattish threads with wider interspaces, one thread at the shoulder more prominent than the rest, forming a wavy keel over the riblets; suture inconspicuous, closely appressed; aperture narrow, canal short, anal sulcus shallow, close to the suture; outer lip prominent, thickened, the edge sharp and incurved; canal short, slightly recurved, pillar lip smooth. Length of shell, 7.7; of last whorl, 5.0; max. diameter of shell, 3.3 mm. Another specimen is 9 mm. long.

This species resembles *Glyphostoma* but has, in the specimens seen, no sculptured callus on the pillar lip. It is not closely like any of the species hitherto known from the coast. It is possible that still older specimens might show some granulation on the inner lip. The type is No. 109,302, U. S. National Museum.

**Mangilia fancheræ** sp. nov.

Shell slender, elongate, of a dark reddish-brown when fresh; nucleus somewhat swollen, smooth, of about two whorls; subsequent whorls about six or seven, similarly sculptured: axial sculpture of numerous low slender flexuous riblets with wider interspaces, extending from the suture to the periphery and obsolete on the base of the shell; these are crossed

(between the sutures) by from four to six spiral subequal threads, of which those on the periphery are somewhat more prominent, and all are slightly nodulous where they over-ride the riblets; on the base there are about 15 of these threads with somewhat wider interspaces; aperture rather narrow, outer lip sharp, flexuous, the anal sulcus wide and shallow, half way between the suture and the periphery; pillar lip smooth, canal rather long, straight, and open. Length of shell, 10.5; of last whorl, 6.0; max. diameter of shell, 3.0 mm.

The sculpture of this shell recalls "*Drillia*" *cancellata* Carpenter of the northern fauna, but this species is smaller, more slender and more delicately ornamented and there seems to be no operculum. The type is No. 109,303, U. S. National Museum.

**Mitra lowei** sp. nov.

Shell of a warm yellow-brown with a whitish apex; nucleus subtrochiform, smooth, solid, of about three conical whorls; subsequent whorls (in the type specimen) about four, rapidly increasing in diameter; those which immediately succeed the nucleus marginated in front of the suture by two or three fine spiral grooves, the interspaces of which stand up like threads, but these gradually become less pronounced and hardly noticeable on the fourth whorl where the sculpture becomes on the periphery fine, very inconspicuous, and widely separated grooves, only noticeable under a lens, but minutely punctate; they become somewhat stronger on the base and canal; aperture rather wide and semi-lunate; pillar with three nearly horizontal plaits; the canal very short and wide. Length of shell, 5.5; of last whorl, 4.5; diameter 2.5 mm.

This species is of the type of *M. fulgurita* Reeve, but of markedly different proportions, the nucleus is very distinct from that of the type of *M. barbadensis*, etc. The only specimen seen is clearly immature, but it is not the young of any of the species known to inhabit the coast and is sufficiently characteristic to be easily recognized. The type is No. 109,305, U. S. National Museum.

**Mitra dolorosa** sp. nov.

Shell smooth, slender, solid, acute; whorls six without the nucleus (which has been lost); the apical whorls show a few (5-7) punctate spiral grooves, which diminish with growth to two or one, and become obsolete on the last whorl; the surface is covered with an olivaceous periostracum; there is in front of the suture a broad ill-defined white band, which does not reach to the periphery; the anterior part of the whorl is dark olivaceous brown; aperture long and wide, canal hardly differentiated, outer lip thin, not lirate; inner lip smooth, with a mere glaze on the body, the pillar solid, with three rather oblique plaits, diminishing forward, the

most anterior quite feeble. Length, 20; last whorl, 14; max. diameter, 7 mm.

Dredged on the west side of the Gulf of California in latitude 31° 05′, in 12 fathoms, muddy bottom.

This species has the gloomy color of *Strigatella tristis* but not the shell characters. The type is No. 109,009, U. S. National Museum.

**Murex (Ocinebra?) painei** sp. nov.

Shell small, rotund, whitish with five or six whorls; nucleus small, smooth, polished; subsequent whorls strongly sculptured; axial sculpture of numerous (on the penultimate whorl 15) sharp longitudinally wrinkled varices extending from the suture to the canal with wider interspaces and somewhat angular or spinose at the shoulder of the whorl; these varices are usually confluent at the suture with those of the preceeding and following whorl; spiral sculpture of strong elevated rounded threads, with a smaller thread in the interspace, somewhat crenulating but not overriding the varices; aperture ovate, the peristome thin, simple, continuous, projecting; there are no lirations in the aperture, the siphonal fasciole is well marked, the canal short and closed over in front of the aperture, with no discarded canal-spines. Length, 15; length of last whorl, 11; max. diameter 8 mm.

This pretty little species resembles one of the Austral Trophons in miniature. It cannot be confounded with any other species of the coast. The type is No. 109,306, U. S. National Museum.

**Lunatia draconis** sp. nov.

Shell depressed, solid, cream color, sometimes with a ferruginous or livid tinge, with six whorls: nuclear whorls very small, smooth; later ones with an obscure, nearly obsolete spiral sculpture like flattened-out threads, over which run microscopic, close-set, spiral striæ; suture with the whorl in front of it feebly channelled and the excavation bounded by an obsolete thread; top of the whorls flattened, part of the base bordering the umbilicus also flattish, the remainder of the whorl rounded, turgid; umbilicus wide and deep, its walls excavated and closely spirally striated aperture oblique, semi-lunate, outer lip thin, base rounded; the angle where the lip meets the body filled with a smooth white callus, the anterior angle of the pillar lip also thickened. Height of shell, 51.0; of last whorls 49.0; of aperture, 44.0; max. width of shell, 50.0 mm.

This species has no close resemblance to any of the other species of the region. The pillar lip is somewhat thickened with a small purplish-brown callus in the perfect shell. The sculpture and the depressed form seem characteristic. From *L. lewisi* Gould, it is easily separated by its

smaller size, depressed form and wide umbilicus pervious almost to the apex of the shell.

Specimens have been obtained from Drake's Bay in 20 fathoms, Monterey in 15 fathoms, off the Farallones Islands in 37 fathoms, and off Avalon, Catalina Island, in about 50 fathoms As Drake was long known to the Spaniards as "El Draco," I have named the species *draconis* in his honor. The type is No. 172,859, U. S. National Museum.

**Macromphalina californica** sp. nov.

Shell small, elevated, with a wide umbilicus and whitish color; whorls two and a half. the last much the largest, rounded above with a prominent suture, below with a wide funicular umbilicus bordered externally by an obtuse carina; surface sculptured axially with numerous coarse oblique threads separated by narrower interspaces and crossed by fine partially obsolete spiral striation; aperture semi-lunate, entire, very oblique; the pillar lip straight, but the whole peristome simple and thin. Height, 5.5; of aperture, 3.5; max. diameter, 5.5 mm.

The single specimen is not in the best condition, but sufficiently good to show the specific characteristics. The Atlantic species *M. depressa* Seguenza, is much more delicately sculptured and the shell is of a smaller size. *M. californica* is more like *M. duplinensis* Dall, from the miocene of North Carolina, but the latter is less elevated. The type is No. 109,307, U. S. National Museum.

**Scala sawinæ** sp. nov.

Shell small, elongate, sub-acute, with ten or more whorls; nucleus of three smooth polished whorls; subsequent whorls smooth, with about 19 low, sharp, slightly reflected varices which entirely cross the whorl; at the shoulder these are slightly spinose; aperture rounded ovate, entire, with a small spine at the shoulder angle and a less conspicuous one at the inner base of the aperture; there is no trace of a basal cord or disk, and no spiral sculpture. Length, 10.5; diameter of aperture, 2.5; max. diameter of last whorl 4.0 mm. A broken specimen with three more whorls seems to have measured 24 mm. in total length when perfect, and 8 mm. in diameter.

This species has been found off the Coronado Islands in 34 fathoms and near Avalon in about 50 fathoms. The type is from 16 fathoms off the isthmus harbor on the south side of Catalina Island, where it was dredged by W. H. Dall, in 1873. It is No. 109,309, U. S. National Museum.

**Ischnochiton biarcuatus** sp. nov.

Animal about 18 mm. long and 7 mm. wide (in the dry state); girdle narrow, with very small, close-set, more or less imbricating, brownish scales; valves rounded evenly above, only the lateral areas distinct; anterior valve with 7 or 8, median with 1, posterior valve with 11 slits; interior of valves rose-pink; exterior ashy, marbled with lilac and brown, an obscure lilac median line on the medial valves; sculpture of undivided central areas formed by two sets of arcuate radiations crossing each other obliquely and with the inter-reticulations impressed or punctate, so that an irregularly zigzag effect is produced by the arrangement of the punctations; lateral areas irregularly concentrically vermiculate, the spaces between the elevated ridges deeply minutely punctate, with somewhat of a zigzag effect here also; the sculpture of the anterior valve resembles that of the lateral areas; of the posterior valve the mucro is low, sub-central and inconspicuous, the central area sculptured like that of the medial valves, the posterior area like the anterior valve; the sutural plates are quite short and the sinus smooth and wide. There is no noticeable mucro to the medial valves.

The peculiar sculpture of this species separates it from those already described from this region. In a general way it recalls the very young of *I. magdalenensis* Hinds. The type is No. 109,308, U. S. National Museum.

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PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

# DESCRIPTIONS OF SOME NEW TREE HOPPERS FROM THE UNITED STATES.

BY ELMER D. BALL.

In studying the life histories and food plants of the *Membracidæ* it was discovered that in a number of cases two or more different species of *Telamona* were being confused under one name in collections. In order to remedy this and to bring the genus up to date the following species are described and food plants noted.

**Telamona pruinosa,** sp. nov. Plate I, figs. 7, 7a, and 7b.

Size and form of *monticola*, nearly, but with a more upright hump and prominent humeral angles. Testaceous powdered with white. Length 10 mm; width 6 mm.

Pronotum rising perpendicularly above the lateral angles in front, upper margin at first convex, then slightly sloping and angled with the posterior margin which inclines a little, forming a large and almost rectangular hump on the anterior half. Humeral angles prominent, acute, half longer than the eyes.

*Color.*—Pale testaceous washed with pale cream or greenish-white especially on anterior half of pronotum and face. This gives the whole insect a powdered appearance.

Described from five females from Illinois and Iowa. The Iowa specimens collected by the author from a young sycamore tree. The

powdered greenish color harmonizes well with the young branches on which they were resting.

**Telamona viridia**, sp. nov. Plate I, figs. 3, 3a, and 3b.

Resembling *pyramidata* in size and form but with less of a hump. Grass green, the male with some fuscous on posterior half of hump and again at apex of pronotum. Length ♀ 11 mm., ♂ 9 mm; width ♀ 5.3 mm.

Pronotal hump in the shape of an obtuse pyramid one-third the distance back from eye to apex of pronotum, a slight angle on posterior margin just below apex especially marked in the male. Height of hump slightly less than one-third the pronotal length. Humeral angles broad, slightly rounded, a trifle longer than eye.

*Color.*—Female, grass green slightly mottled with yellow, carina light except at apex of hump and at tip where it is tawny. Male grass green, carina light interrupted with tawny; a fuscous band runs obliquely backward from apex of hump and fades out before reaching the pronotum proper or sometimes connects with a tawny spot on lower margin, whole apex of pronotum tawny.

Described from eleven specimens from Colorado and Iowa, collected by the author, and one from Illinois. This species occurs on the cottonwood (*Populus monilifera*), where its green color and rounded form imitates the larger terminal buds that form in the fall. The larvæ are of a mottled gray and hide in the rough bark.

**Telamona obsoleta**, sp. nov. Plate, I figs. 2, and 2a.

Resembling *irrorata* but smaller and with a smaller and more rounding hump. Length ♀ 10 mm., ♂ 9 mm.; width 5 mm.

Dorsal hump low and much inflated; it scarcely narrows from the base to just before the apex where it rounds in to form a carina. Anterior margin rising just back of the humeral angles and extending from there half way to the apex of the pronotum. The height is about equal to the whole length and it rounds down to the pronotum proper at both extremities. Front much elevated above the level of the eyes so that the ocelli are farther from the base of front than from each other.

*Color.*—Yellow with the punctures fuscous, sometimes coalescing into brownish fuscous spots giving the whole insect an irrorate and mottled appearance with little regularity of pattern, Usually there is a semicircle of lighter shade back of the humeral angles and a light spot on middle of hump. There is a pair of large straggling black marks above and within the eyes, some brown on the inner nervures of corium, and a smoky brown cloud at apex.

Described from six specimens collected by the author at Ames, Iowa, and one from Onaga, Kansas (F. F. Crevecoeur). This species occurs on the elm, both larvæ and adults being found in the crevices of the bark

of the trunk or large branches, where their mottled gray color renders them very difficult to detect.

**Telamona extrema**, sp. nov. Plate I, figs. 1, 1a, and 1b.

Form of *unicolor* nearly, smaller and with a still longer hump. Greenish testaceous. Length ♀ 10 mm., ♂ 9 mm.; width 5 mm.

Pronotal hump very high, almost quadrate, occupying the anterior three-fifths of pronotum, anterior margin rising perpendicularly from face, crest highest just back of the well-rounded anterior angle from which it slopes slightly to the almost perpendicular posterior face. Humeral angles moderate, as long as the eyes.

*Color.*—Greenish testacious; a spot above each eye and the median carina back to the posterior angle of hump fuscous; posterior face of hump broadly marked with creamy white which narrows to a line on the carina posteriorly in the female, and disappears entirely in the male. The lower margin of the humeral angles is sometimes marked with fuscous.

Described from two females collected by the author at Ames, Iowa, and a pair collected in Marion County, Kansas, by F. M. McElfresh. The two Ames specimens were beaten from a patch of second growth oak.

**Telamona lugubris**, sp. nov.

Form of *reclivata* nearly, slightly shorter and stouter built and with a lower and longer hump and lacking the markings of that species. Obscurely greenish brown. Length ♀ 11 mm, ♂ 9.5 mm; width 5.5 mm.

Dorsal hump of moderate size, arising just back of lateral angles; anterior margin sloping back, forming a right angle with the inclined crest, posterior margin perpendicular or slightly overhanging. Base of hump occupying a little over two-fifths of distance from humeral angles to apex of pronotum. Humeral angles blunt and obtuse, about two-thirds as long as the eye.

*Color.*—Pale yellow, the more or less darkened punctures giving the insect a general grayish cast with still darker shadings on the lateral faces of the hump and sometimes on the apex of pronotum.

Described from six specimens from Ames, Iowa, collected by the author, and one from Onaga, Kansas, collected by F. F. Crevecoeur.

The larva of this species was found quite commonly on the trunks of the scrub oak, feeding on the little sprouts and hiding in the crevices of the bark. The adults were found on the small limbs.

**Telamona decorata, sp. nov. Plate I, figs. 6, and 6a.**

Smaller than *lugubris*, with a shorter and more rounding hump. Yellowish fuscous with the hump deep testaceous brown. Length 9 mm.; width 4.5 mm.

Dorsal hump sloping up from both front and rear, crest rounding, highest just in front of the middle, hump occupying scarcely two-fifths of the pronotum from the humeral angles back. Humeral angles short and blunt, about two-thirds the length of the eye.

*Color.*—Face and pronotum pale yellow very slightly washed with brown in the female, and with a definite brown shade in the male, median carina alternately light and dark before the hump. Hump rich testaceous with a few light spots on the sides, a definite light mark at the base in front, which may extend up onto the carina, and the whole posterior margin light. This latter light spot extends down on to the pronotum and connects with an irregular transverse light band about half way to apex. Each side of this band is an irregular testaceous band, the anterior one connected with the testaceous hump. A pair of spots above the eyes and the apex of elytra brownish fuscous.

Described from six specimens from Ames, Iowa, collected by the author, one from Onaga, Kansas (Crevecoeur), and a pair from Arkansas (McElfresh). The Iowa specimens were all taken from the smaller branches of the red oak.

**Telamona compacta,** sp. nov. Plate I, figs. 5, and 5a.

A small, compact, testaceous and white species with a low almost quadrangular hump. Length 8–9 mm.; width 4.3 mm.

Dorsal hump sloping up from above the humeral angles, highest just back of the rounding anterior angles, crest straight or nearly so, sloping posteriorly, the posterior margin very slightly sloping and subangulate with the crest. Hump extending slightly more than half the distance from the humeral angles to the very short and blunt apex. Humeral angles short and blunt, about two-thirds the length of the eye.

*Color.*—Rich testaceous marked with creamy white, as follows: a number of small spots just above the face, an angular or stellate spot in front of the hump, the posterior margin of hump and a transverse band half way between there and apex of pronotum. Usually a spot or two on lateral face of hump and one on margin below hump. Elytra smoky testaceous with a hyaline band across the base of the apical cells.

Described from a pair from Ames, Iowa, collected by the author, and two females from Arkansas collected by F. M. McElfresh. The pair from Iowa were taken from a patch of mixed oaks.

**Telamona ehrhorni,** sp. nov. Plate I, figs. 4, and 4a.

Form of *sinuata* nearly but smaller. Dark fuscous brown prettily ornamented with light. Length ♂ 8 mm.; width 4.5 mm.

Dorsal hump long, rather high, rising on a line with the humeral angles, anterior margin straight, inclined backwards, crest roundingly angled in front, sloping posteriorly, slightly emarginate on the posterior half. Posterior margin short, inclined, rounding to the pronotum. Hump occupying nearly three-fifths of the distance from the humeral angle to apex of pronotum.

*Color.*—Deep brownish fuscous, face and lower margin of pronotum mottled with creamy yellow, a reniform yellow mark with a dark center in front of the hump, a large yellow crescent on each side extending from the middle of the humeral angle nearly half way to the apex and enclosing a few irregular dark spots, an inverted crescentic line extends from a point below the middle of crest. The posterior face of hump is light and this light area connects posteriorly with a transverse light band.

Described from one male taken at Flagstaff, Arizona, by E. M. Ehrhorn, who is doing good work in the scale insects, and who has sent me many fine *Homoptera* from lower California.

**Telamona pulchella,** sp. nov. Plate I, figs. 9 and 9a.

Resembling *coryli* but much smaller and with a lower, longer hump. Length 5.5-6 mm.; width nearly 4 mm.

Dorsal hump arising in front of the lateral angles but still back of the face and pronotal line, anterior face perpendicular, crest slightly sloping posteriorly, both angles slightly rounding, posterior margin sloping and rounding into a very marked carina on the apical portion of pronotum. Besides this there are three well marked lateral carinæ on the posterior half of the pronotum. Humeral angles long and acute, nearly twice as long as the eye.

*Color.*—Pale creamy yellow, the lateral angles pale testaceous, the lower margin lined with white which is again margined internally with black. Hump testaceous, omitting the lower half of each margin and an irregular light stripe on the median third. This stripe usually narrows on the middle and then expands into a crescent below. The testaceous on the posterior part of hump extends down to the margin of pronotum and there are a few irregular markings towards the apex.

Described from three specimens collected by the author in southern Colorado. Taken on the scrub oaks of the foot hills.

**Telamona brevis,** sp. nov. Plate I, figs. 8 and 8a.

Form of *obsoleta* nearly, much smaller and shorter. Smaller and darker than *pulchella*, dark fuscous brown mottled with pale. Length 5 mm.; width nearly 3 mm.

Dorsal crest low, rounding from the anterior margin of pronotum to a point more than half way back from the humeral angles, from here it slopes quickly into the curve of the pronotum. Humeral angles large, stout, half longer than eye.

*Color.*—Fuscous brown, variable, hump darker, omitting the posterior margin and a crescent on each side. An oblique band runs down from the posterior half of hump to the lower margin of pronotum.

Described from three females collected by the author in southern Colorado. Taken from oak along with the preceding species.

## EXPLANATION OF PLATE.

FIG. 1. *Telamona extrema* sp. nov., lateral view. 1*a*. Anterior view; 1*b*. Dorsal view.

FIG. 2. *Telamona obsoleta* sp. nov., lateral view. 2*a*. Anterior view.

FIG. 3. *Telamona viridia* sp. nov., lateral view. 3*a*. Anterior view; 3*b*. Dorsal view.

FIG. 4. *Telamona ehrhorni* sp. nov., lateral view. 4*a*. Anterior view.

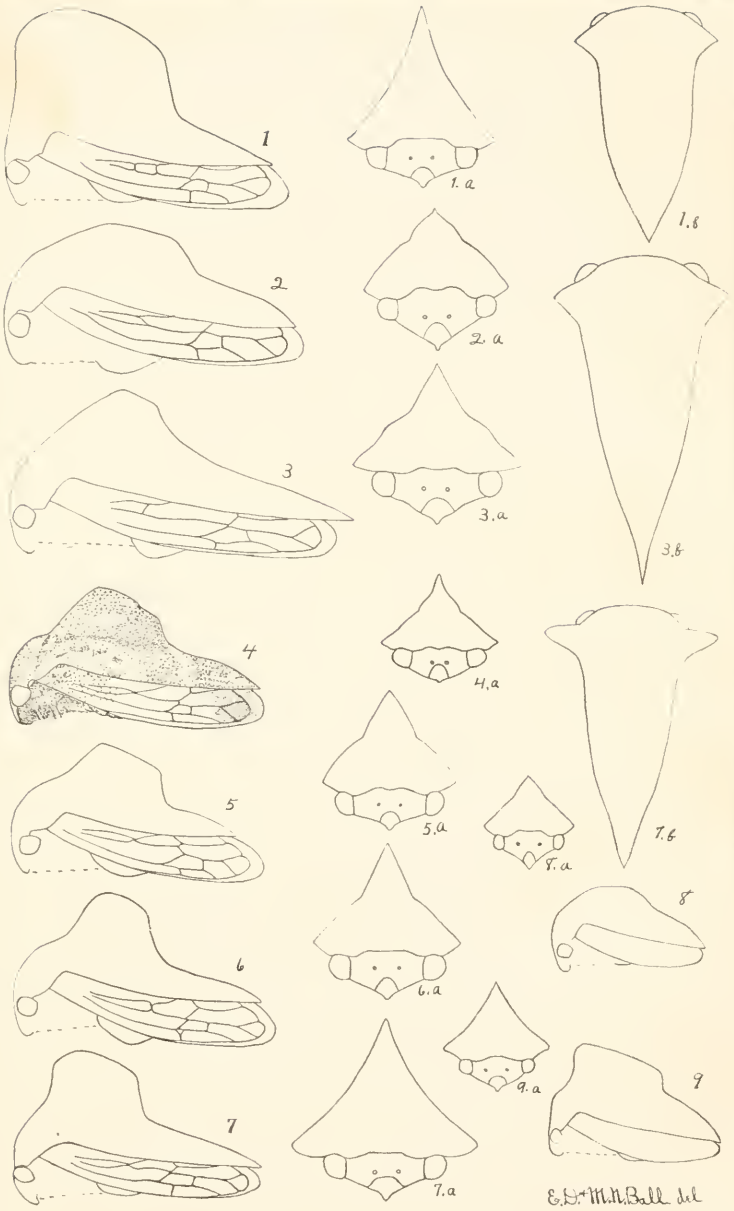
FIG. 5. *Telamona compacta* sp. nov., lateral view. 5*a*. Anterior view.

FIG. 6. *Telamona decorata* sp. nov., lateral view. 6*a*. Anterior view.

FIG. 7. *Telamona pruinosa* sp. nov., lateral view. 7*a*. Anterior view; 7*b*. Dorsal view.

FIG. 8. *Telamona brevis* sp. nov., lateral view. 8*a*. Anterior view.

FIG. 9. *Telamona pulchella* sp. nov., lateral view. 9*a*. Anterior view.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